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Virginia State Rail Plan

The Virginia Statewide Rail Plan (VSRP) is a comprehensive long range planning document that addresses the commonwealth's transportation goals through VTRANS2035 as well as Federal Railroad Administration (FRA) regulations for state rail plans identified in 49 CFR 26615. The VSRP has been developed through an extensive process involving federal and state agencies, key stakeholders and the public. This document is the culmination of multiple documents developed during the planning and public involvement process:

- *Statewide Rail Plan – Summary Report*, which serves as the executive summary of the VSRP and presents the vision, goals and policy recommendations to meet the Commonwealth's freight, intermodal shipments, passenger rail (commuter, intercity and high speed services) needs through 2035 in a format accessible to the Citizens of the Commonwealth. The Summary Report was developed from the technical data developed and contained within this document and the the other documents described below.
- The *2008 Statewide Rail Resource Action Plan, December 15, 2008* was prepared to meet the requirements in legislation from the Virginia General Assembly which recommended project priorities for rail improvements.
- The Statewide Shortline Railroad Improvement Plan - Technical Memorandum November 2, 2009 prepared to describe the activities funded by Virginia through the Rail Preservation Program.

About This Report

This Technical Report is the synthesis of the above reports and presents more technical and detailed information about the existing system and future needs of Virginia's Rail system, how rail is a vital component of the Commonwealth's overall multi-modal transportation system, major transportation corridors and rail improvements for those corridors and provides strategic recommendations to meet those needs. A brief summary of each chapter is provided below:

- Chapter 1 provides an introduction and discusses the purpose of the VSRP,
- Chapter 2 discusses DRPT mandates and strategic transportation goals of the Commonwealth, and specific goals for rail transportation.
- Chapter 3 provides the national, regional, and statewide context for the Rail Plan and how Virginia interfaces with national transportation corridors and networks; how rail interfaces with highway, port and aviation modes; land use, natural resources and environmental influences; and interface with the VTrans 2035 transportation planning efforts.
- Chapter 4 provides a brief history of rail development in the United States, particularly passenger services being provided by Amtrak and the Virginia Railway Express.
- Chapter 5 provides an overview of the Virginia rail system and tonnage carried, including the Class I railroads (Norfolk Southern and CSX), the Commonwealth's shortline system consisting of 10 railroads. The chapter also provides an overview of

the intercity passenger rail service routes by Amtrak and commuter rail services by VRE, including ridership data and on-time performance information.

- Chapter 6 discusses national and Virginia growth trends for population, freight, and rail system congestion. It discusses the trends in passenger rail travel, high speed rail, economic development based on rail services, and the trends in two major Virginia freight commodities – coal and containerized cargo.
- Chapter 7 provides an understanding of private railroads, federal exemption laws, and the need for effective public-private partnerships to address rail issues.
- Chapter 8 provides a summary of current funding programs and historic funding commitments to meet Virginia rail policy goals and needs. It also contains a discussion of the benefit cost analysis methodology developed by DRPT to evaluate the public benefits of potential rail improvement projects.
- Chapter 9 discusses major project accomplishments since the previous rail plan, both legislative and rail improvement projects that have been constructed.
- Chapter 10 discusses rail abandonments, railroad consolidations, safety, highway-rail grade crossings, and the Commonwealth's rails-to-trails program.
- Chapter 11 discusses the unconstrained rail improvement needs for the principal Class I freight railroads, commuter and intercity passenger rail operators and services, and the Ports of Virginia. It also
- provides a rail program revenue outlook and potential funding sources, including a recommended resource allocation plan for rail improvement projects based on revenue projections, and the methodology used to prioritize projects for consideration by the Commonwealth.
- Chapter 12 discusses the unconstrained rail improvement needs for the shortline freight railroads,
- Chapter 13 concludes the technical report and contains discusses future rail plan updates by the Commonwealth and annual reports required by the Federal Railroad Administration.
- Chapter 14 provides a list of sources utilized in the development of the Statewide Rail Plan.

Following Chapter 14.0, the VSRP contains three appendices. Appendix A contains a discussion of abandoned railroads and the Commonwealth's rails-to-trails program. Appendix B contains a summary of previous and current studies concerning rail transportation and multimodal solutions for multi-state corridors such as I-95 and I-81, as well as proposed high speed rail projects. Appendix C contains an assessment of shortline railroad needs and estimated costs for rail improvements.

VTrans2035 Process

VTrans2035, the Commonwealth's statewide long-range multimodal transportation plan, is being updated by the Office of Intermodal Planning and Investment with the support of the five state transportation modal agencies: Department of Rail and Public Transportation, Department of Aviation; Department of Transportation, Department of Motor Vehicles and

the Virginia Port Authority. The Statewide Rail Plan will be a key input into the VTrans2035 update.

VTrans2035 is being updated in conjunction with key stakeholders across the Commonwealth. This coordinated effort will ensure a well-balanced plan that evaluates pressing transportation issues across the entire state and across all modes. VTrans2035 will build upon the accomplishments of VTrans2025, the current statewide long-range multimodal transportation plan completed in 2004. The VTrans2035 update will:

- Validate the vision and goals set forth in VTrans2025
- Conduct an inventory of the existing transportation system, across all modes
- Examine socioeconomic and demographic trends
- Explore the long-term viability of the motor fuels tax
- Explore through a series of issue papers pressing transportation policy and topics such as safety, system preservation, freight mobility, accessibility/connectivity, land use, regionalism, economic development, technology, congestion and environment
- Determine the economic impact of transportation investments
- Examine the adequacy of transportation funding
- Look closely at the characteristics and deficiencies of corridors of statewide significance
- Identify strategies to improve movement through and between the corridors using modal plans to select the best strategies
- Integrate agency modal plans into a comprehensive and cohesive Statewide Plan
- Include extensive public and stakeholder involvement

VTrans 2035 will incorporate surface transportation (highway, transit and travel demand management), rail, port and aviation plans. As one of the modal plans that will be incorporated into VTrans 2035 this VSRP addresses the goals as indicated utilizing the state transportation planning process. The VSRP was developed based on the significant statewide multimodal transportation corridors and provides the Commonwealth with a balanced modal approach to the movement of people and goods. This plan recommends the best rail infrastructure investments utilizing a clearly defined process that takes into account cost, funding sources, safety, congestion and the environment.

Federal Rail Administration (FRA) – State Rail Plan Requirements

The FRA requirements for State Rail Plans are contained in 49 CFR § 266.15.

49 CFR § 266.15(a) requires that 'The State Rail Plans shall be based on a comprehensive, coordinated and continuing planning process for all transportation services within the State and shall be developed with an opportunity for participation by persons interested in rail activity in the State and adjacent States where appropriate..'. The VTrans2035 process detailed above meets the requirements of this section

49 CFR § 266.15(b) requires that 'Each item submitted in response to a federal requirement shall reference that requirement by subsection, paragraph, and subparagraph in the rail plan report.' To meet this requirement the Virginia State Rail Plan has included a cross reference between the requirements of 49 CFR § 266.15 and their location within the VSRP. Additionally, each chapter will cite the applicable requirements that are addressed in that chapter.

49 CFR § 266.15(c)(10), 49 CFR § 266.15(c)(11), 49 CFR § 266.15(c)(11A) require data on the overall planning process. The VSRP is prepared using the VTrans2035 process as referenced in the preceding discussion and therefore meets both state and federal planning objectives.

1. INTRODUCTION AND PURPOSE

Rail has successfully been operated in America for almost 183 years. Between 1825 and 1900, American railroads grew quickly - from 23 track miles in 1830 to 231,540 miles in 1908. However, from 1908 through 2004, track miles of the major (Class I) railroads decreased by 131,414 miles. In order to truly develop a rail plan for the future, we must understand what has and is happening to railroads and other transportation modes, what are the future trends related to population, the economy, natural resources, and our environment that will influence our future prosperity.

This plan is built on an understanding of five fundamentals: the current environment and conditions, the goals and vision that support future prosperity, identification of projects that support the goals and visions, identification and establishment of strategic partnerships, and a business model and financial resources available to secure the goals and vision that support future prosperity.

The primary purpose of the Virginia Statewide Rail Plan (VSRP) is to provide a defined vision for rail transportation in the Commonwealth of Virginia. It represents a Business Plan that incorporates the aforementioned fundamentals, along with principles and planning horizons that are consistent with the Commonwealth's Six Year Improvement Plan and long range vision that is currently being updated in VTrans2035. The VSRP includes a Resource Allocation Plan that details project selection and prioritization, funding, and implementation schedules.

The Statewide Rail Plan has been developed to comply with both the VTrans 2035 planning process and the Federal Railroad Administration's requirements detailed in 49 CFR 266.15 Requirements for a State Rail Plan. This plan was developed using a three step process which incorporated public hearings and comments of the following documents:

- Draft Six Year Improvement Plan for all modes of transportation by the Commonwealth (roads, rail, aviation, ports, and other miscellaneous modes)
- 2008 Statewide Rail Plan (December 2008)
- Statewide Rail Resource Allocation Plan (December 2008)

The Virginia Department of Rail and Public Transportation (DRPT) is the lead state agency for rail, transit and congestion management in Virginia. DRPT has the flexibility to provide diverse transportation solutions to move more people and goods statewide by focusing on projects that deliver public benefits for the investment of public funds. As part of this approach, DRPT must periodically identify rail needs, priority corridors, and capacity chokepoints across the state in order to maintain the strategic plan and vision for rail transportation in Virginia.

This plan represents an update of the Statewide Rail Plan published in 2004. Moving forward, DRPT will revise the statewide plan every five years with annual updates. In addition the Six Year Improvement Program (SYIP) will be updated annually to keep pace with emerging trends, priorities and needs.

The VSRP is intended to provide detailed information on existing rail conditions and programs in Virginia today and rail needs for the future, with a focus on identifying key transportation corridors, scenarios for investment and project identification for the short term and long term. Short term projects are those that could be implemented within six years and long term projects are those that could be implemented within the twenty five-year planning horizon of 2035.

Proposed funding (state, federal, local, and private sector) and an implementation plan based on existing and potential new revenue sources for selected projects is included, as well as the allocation of resources between passenger and freight rail projects statewide. A primary focus has been identifying specific projects for funding and implementation over the next six years. Projects will be developed based on the needs and priorities identified in the Statewide Rail Plan, and the selection of projects for implementation in the next six years has been guided by the evaluation of projects based on the achievement of state transportation goals and the determination of public benefits to be achieved through each project.

The VSRP contains short and long term rail priorities for Virginia, providing direction for critical rail projects that will support a cost-effective and efficient rail network. Ultimately, rail transportation in Virginia will provide more transportation choices for people and goods, congestion relief for the state's highway system, energy savings through reduced fuel consumption and better air quality through reduced emissions.

The VSRP has been developed in coordination with other Commonwealth transportation agencies, including the State Transportation Mobility (Multimodal) Office, Virginia Department of Transportation (VDOT), the Virginia Port Authority (VPA), the Virginia Department of Aviation (DOAV), and the Department of Conservation and Recreation (DCR). Input was also received from major rail stakeholders including the Federal Railroad Administration (FRA), the Virginia Economic Development Partnership (VEDP), Norfolk Southern (NS), CSX Transportation (CSX), Amtrak, Virginia Railway Express (VRE), Regional Metropolitan Planning Organizations (MPO), Regional Planning District Commissions (PDC), Virginia's ten shortline railroads, the U.S. military (U.S. Army Surface Deployment Command), and other organizations. Public input was also included through a comprehensive public involvement program.

The relatively close proximity of the rail network in the Commonwealth to major highway transportation corridors is shown in Figure 1-1. Implementation of key rail improvements provide cost-effective and environmentally friendly alternatives to remove passenger cars from congested highway systems by providing improved passenger rail service, and to remove trucks from congested highway systems by providing improved freight rail service.

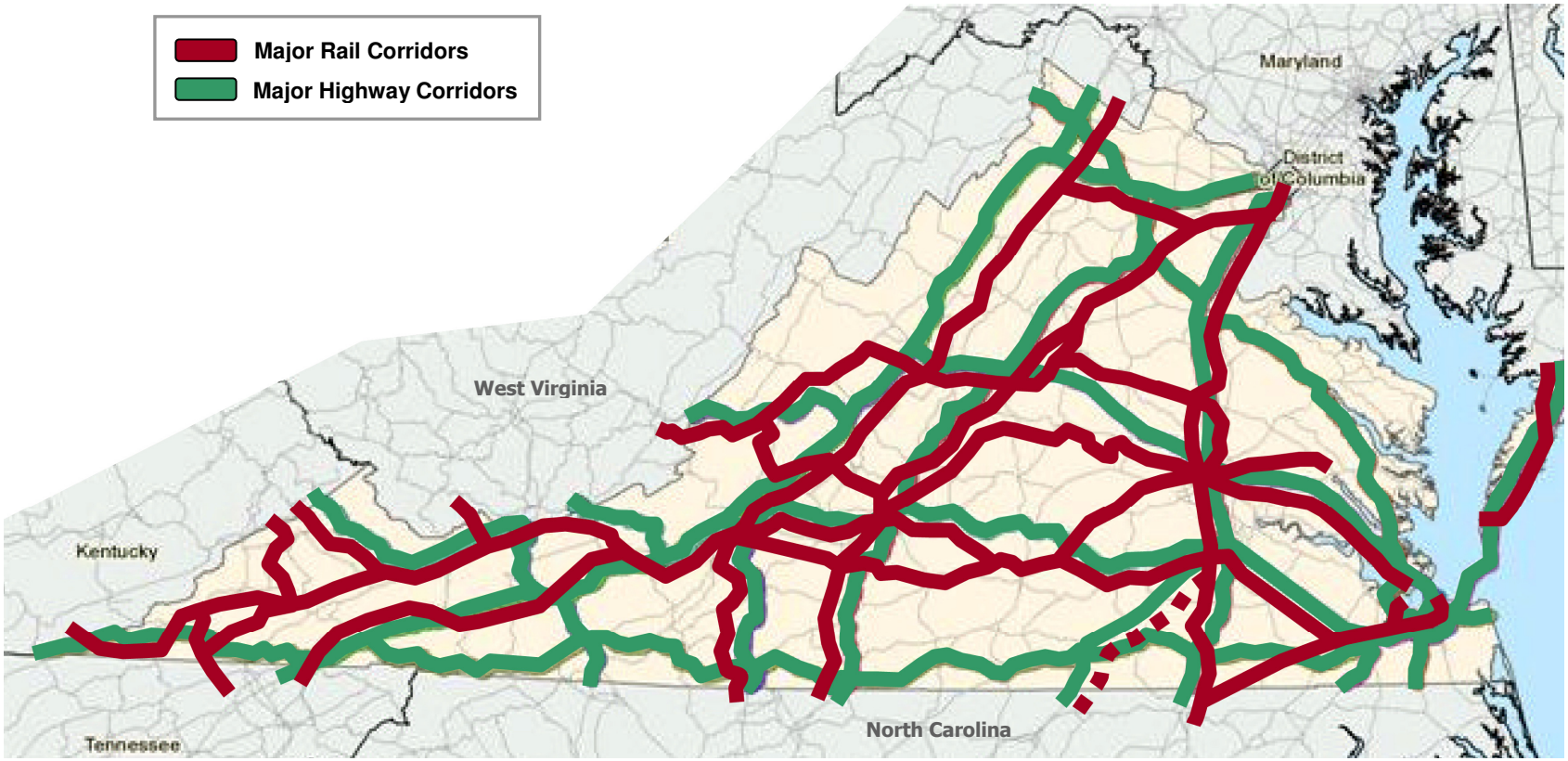


Figure 1- 1 Virginia Rail and Highway Corridors

1.1. FRA Requirements

This Chapter of the VSRP presents information related to DRPT's development of the VSRP as required by 49 CFR § 266.15 (a) and 49 CFR § 266.15 (c)(2).

The data required by 49 CFR § 266.15 (c)(2) is presented in Figures 1-1 Virginia Rail and Highway Corridors.

1.2. Virginia's Strategic Transportation Planning Process

The Commonwealth's strategic transportation planning process supports the development of a comprehensive statewide multimodal Six Year Improvement Plan (SYIP) and long-range transportation improvement plan to a 2035 planning horizon through the four state transportation modal agencies - Department of Aviation, Department of Rail and Public Transportation, Port Authority, and Department of Transportation. The transportation plan is developed with opportunities for public input and comment throughout the process. The general transportation planning process is shown in Figure 1-2 and included the following sequential phases:

1.2.1. Purpose and Need

The purpose of the VSRP is twofold, to ensure compliance with FRA requirements and to meet the state transportation planning process and goals set forth.

1.2.2. Data Collection and Analysis

Data collection includes existing conditions; socio-economic conditions; environmental and historic resources impacts; environmental justice; available resources and capital; and land use impact. Data analysis includes: strengths; weaknesses; opportunities; threats; service gaps; and mitigating factors beyond agency control.

1.2.3. Goals and Objectives

Goals are general statements that address what action will be taken to address: strengths; weaknesses; opportunities; threats; and service gaps. Objectives are quantifiable measures used to help achieve the stated goal.

1.2.4. Planning Guidelines

Description of policies and programs developed to address the goals and objectives, including: ways to maintain or expand upon existing strengths; how to correct weaknesses;

how to take advantage of opportunities; how to deal with potential threats; and how to fill service gaps.

1.2.5. Implementation

Includes the determination of projects to be implemented that help achieve policies or implement programs. These projects would be divided into short range – within six years and can be included in the Commonwealth's Six Year Improvement Plan (SYIP); medium range – seven to 15 years and could be added to the six year plan if certain conditions are met; and a long range plan – 15-20 years and would include additional actions necessary to turn ideas into projects. The long term plan horizon for the Commonwealth is the year 2035.

1.2.6. Plan Evaluation

Determines what situations or events have changed that affect the plan. Are objectives being reached? Do projects selected help meet stated goals? Plan evaluation also includes any corrective measures that must be taken to meet goals and objectives.

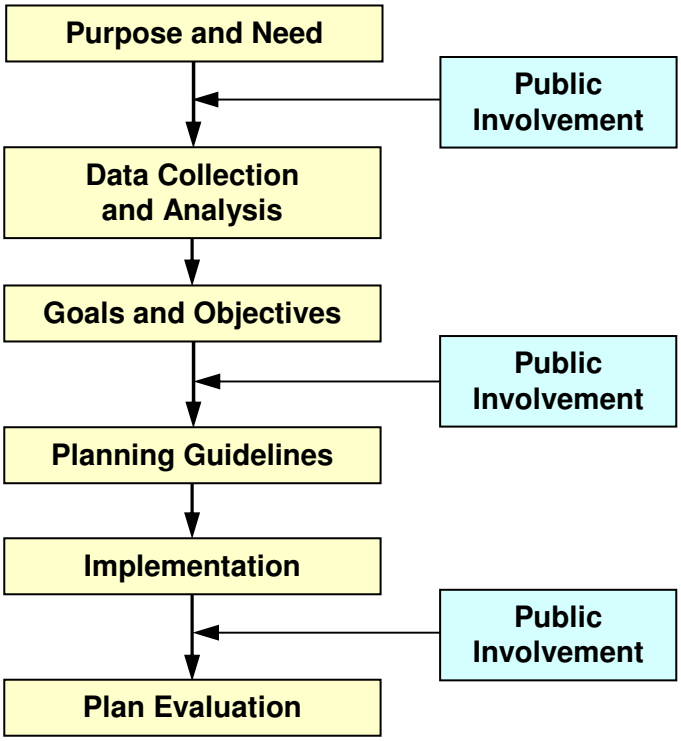


Figure 1-2. Strategic Transportation Planning Process

1.3. Public Involvement

The DRPT planning process actively sought public review and comments throughout the development of the Statewide Rail Plan and its related documents.

1.3.1. Six Year Improvement Plan

Based on input from all transportation agencies (including DRPT), the Commonwealth developed a draft SYIP (2009 – 2014) for public review and comment. In addition to comments submitted through the Commonwealth's website, any comments were submitted after the SYIP presentations at the following public hearings:

April 16, 2008 – Lynchburg, VA
April 21, 2008 – Bristol, VA
April 23, 2008 – Richmond, VA
April 24, 2008 – Chesapeake, VA
April 30, 2008 – Harrisonburg, VA (Hampton Roads)
May 14, 2008 – Northern Virginia

1.3.2. 2008 Statewide Rail Plan:– December 12, 2008

A 2008 Statewide Rail Plan was developed by DRPT which identified the Commonwealth's rail system for freight and passenger rail, as well as the estimated needs and costs associated with potential rail improvement projects. In addition to comments through DRPT's website, any comments were also be submitted after the 2008 Statewide Rail Plan presentations at the following public hearings:

July 16, 2008 – Richmond, VA
July 23, 2008 – Staunton, VA
July 24, 2008 – Roanoke, VA
July 29, 2008 – Northern Virginia
July 30, 2008 – Chesapeake, VA (Hampton Roads)

Comments from these public hearings were utilized in the subsequent development by DRPT of a recommended Rail Resource Allocation Plan which included priorities and funding sources for proposed short term and long term rail improvement projects.

The majority of the comments received during the public comment period encouraged increased passenger and freight rail service in Virginia's major corridors, including I-81, I-95, I-64 and US 29. Overwhelming support was received for passenger rail service between Lynchburg and Washington, D.C., and many who commented requested that the service be extended to Roanoke and Bristol. Regarding freight rail service, many supported freight rail enhancement throughout Virginia and specifically in the I-81 corridor.

Regarding funding, comments generally encouraged DRPT to secure dedicated funding for freight and passenger rail service, opposed opening the Mass Transit Trust Fund to

passenger rail projects and opposed requiring local funding for intercity passenger rail projects.

Finally, it was important to the vast majority of those who sent comments that the projects proposed in the Draft Statewide Rail Plan provide environmental benefits such as reduced dependence on oil, improved air quality and the preservation of historic and culture resources as well as natural resources.

1.3.3. Statewide Rail Resource Allocation Plan – December 15, 2008

In accordance with a mandate from the Virginia General Assembly, DRPT prepared a separate Rail Resource Allocation Plan which provided recommended project priorities for passenger and freight rail improvements. The Resource Allocation Plan included prioritized projects, recommended funding sources, and schedules for implementing selected projects that would involve taxpayer dollars (projects financed solely by the private sector railroads were not included in the funding recommendations).

2. VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION

2.1. FRA Requirements

This Chapter of the Virginia Statewide Rail Plan (VSRP) presents information related to Virginia's objectives for transportation as required by 49 CFR § 266.15 (c)(1)

2.2. Background

The Virginia Department of Rail and Public Transportation (DRPT) was established in 1992 as an agency under the Secretary of Transportation. DRPT works closely with other state transportation agencies including the Virginia Department of Transportation, the Virginia Port Authority and the Department of Aviation.

DRPT has three primary areas of activity (rail, public transportation and transportation demand management - also called mobility management) all of which focus on the movement of people and goods throughout Virginia.

Rail Transportation involves the movement of people (passengers) and goods (freight) on railways owned and operated by private railroad companies. There are 14 railroad companies and services in Virginia, including Norfolk Southern, CSX, Amtrak, Virginia Railway Express, and 10 shortline railroads. Freight rail programs help ensure the economic vitality of businesses and communities through infrastructure improvements that assist railroads to provide a cost-effective and reliable way to bring goods to market. DRPT's passenger rail programs provide support and infrastructure improvements that assist the passenger rail providers as they relieve congestion on highways and offer travelers more transportation choices. DRPT supports both passenger and freight rail initiatives through funding options, expert advice, research, and advocacy. To safeguard Virginia's connections to the national rail network, DRPT represents the state's interests in interstate and national rail issues.

Public Transportation manages traffic congestion by providing transportation choices while safely transporting people to destinations across the Commonwealth. There are more than fifty public transportation systems in Virginia that range in size from two-bus programs in small towns to larger regional systems like Washington Metropolitan Area Transit Authority (WMATA) in Northern Virginia and Hampton Roads Transit (HRT) in the Tidewater Region. Some systems are fee-based, while others provide free access for the elderly and disabled. By advising, supporting and funding public transportation programs statewide, DRPT helps provide safe, reliable transportation options for everyone.

Transportation Demand Management and Commuter Services programs work to promote carpools, vanpools, telecommuting and other alternative modes of transportation to Virginia's commuters. These programs not only save people (and employers) time and money, they can also help manage traffic congestion and benefit the environment. DRPT currently partners with fifteen commuter service programs operating in the Commonwealth to provide people with information, business incentives, and ride-matching services at no charge to the public.

This Statewide Rail Plan only considers the rail transportation system for commuter and intercity rail (Amtrak and Virginia Railway Express) and freight movements (Norfolk

Southern, CSX, and Shortline Railroads) in Virginia. Separate plans will be developed by DRPT for Public Transportation and Transportation Demand Management.

2.3. DRPT Strategic Plan Goals

The Statewide Rail Plan supports the Commonwealth's core transportation mission, which is to improve the mobility of people and goods while expanding transportation choices in the state. The Department of Rail and Public Transportation have developed the following Strategic Plan Goals in order to meet the Commonwealth Transportation Goals:

- Improve access for the general public and businesses to alternative transportation (public transportation, carpools, vanpools, human service transportation, passenger rail and freight rail) and telecommuting.
- Provide access and improvements to Virginia's railways to encourage economic development and reduce truck traffic on Virginia's highways.
- Seek the highest possible return on investment to maximize limited funding.
- Increase communication to the general public, businesses and community decision-makers on alternative transportation choices and telecommuting.
- Implement best practice management tools and techniques to improve customer service and accountability.

2.4. Commonwealth Transportation Goals

Virginians can be justifiably proud of the Commonwealth's extensive transportation network that connects people, places and products both locally and globally. By providing efficient access by rail, highways, seaports, and airports to desired activities and goods, Virginia's transportation system creates the foundation for our prosperous economy and future economic development. Yet, as noted in Virginia's Transportation Performance Report (2006), prepared by the VDOT Transportation and Mobility Planning Division, transportation remains the most urgent problem facing Virginia today due to increasing costs for both new transportation improvements and maintenance of existing systems, with the result that transportation needs continue to outpace available funding.

In the development of this Statewide Rail Plan, the DRPT is committed to a comprehensive multimodal strategy which integrates passenger and freight rail needs into the overall transportation network of the Commonwealth. Rail transportation is an important component of Virginia's evolving transportation network, reducing highway congestion by diverting cargo from trucks to rail and diverting people from cars to passenger rail.

The rail system is vital for the Commonwealth's economy, connecting Virginia to the global marketplace both overseas through connections at the Ports of Hampton Roads and in North America through rail connections that extend to the nation's East and West Coasts, north to Canada, and south to Mexico.

The Commonwealth is committed to enhancing partnerships with the private sector, including railroads, local governments, and regional planning organizations, to attract private capital and to achieve its strategic goals. In accordance with the Governor's Transportation Accountability Commission guidelines, the implementation of this rail plan will be conducted with the following Commonwealth transportation goals:

- **Safety and Security**: Rail improvements will be developed to provide a safe and secure transportation system – particularly as high speed rail services are brought online. The railroads in Virginia have a strong safety records. However, constant diligence, education in rail safety and security, and improvements at highway-rail grade crossings will continue the Commonwealth's past history of annual reductions in rail-related injuries and fatalities. Metrics include:
  - Number and rate of fatalities (grade crossings and trespassers)
  - Number and rate of injuries (grade crossings and trespassers)
  - Increase in the number of grade separation structures
  - Increase in the number of at-grade crossings closed
- **Preservation and Management:** DRPT will work with Virginia's private railroad companies to preserve and manage the existing rail transportation system through technological improvements and more efficient operations. Metrics include:
  - Improve on-time performance for both freight and passenger rail trains
  - Percentage of Virginia's shortline rail system in need of repair
  - Percentage of passenger trainsets that exceed replacement age
  - Encourage self-sufficiency of passenger operators by higher farebox revenues
- **Mobility, Accessibility, and Connectivity:** DRPT and our public-private partnerships with the rail industry will develop projects that facilitate the efficient movement of people and goods, and improve interconnectivity of all transportation modes. Metrics include:
  - Increase passenger rail ridership
  - Increase diversion of freight from trucks to rail
  - Expand rail services to developed markets.
- **Economic Vitality:** DRPT will develop projects that improve Virginia's economic vitality and facilitate the coordination of rail transportation, land use, and economic development planning activities. Metrics include:
  - Use of Rail Industrial Access and Rail Enhancement Funds to retain existing businesses and attract new businesses (number of jobs created, number of jobs maintained and economic impact of projects).
- **Land Use and Quality of Life:** Diversion of trucks to freight rail and people in cars to passenger rail will provide significant environmental benefits due to decreased pollution and improvements in air quality and water quality, as well as decreased energy consumption. Metrics include:
  - Tons of transportation-related emissions saved by rail improvements
  - Number of trucks diverted from highway usage to freight rail usage
  - Fuel usage saved by diversion of trucks to freight rail, and people from cars to passenger rail.

3. CONTEXT OF THE VIRGINIA STATEWIDE RAIL PLAN

3.1. FRA Requirements

This Chapter of the Virginia Statewide Rail Plan (VSRP) presents information related to Virginia's Transportation Network in the context of the national system. This is not a requirement of 49 CFR § 266.15 however, some of the data presented fulfills portions of the requirements.

The requirement of 49 CFR § 266.15 (c) (2) iii is met by Figure 3-11 Major Freight Corridors in Virginia.

3.2. Transportation Corridors and National Transportation Network

The Statewide Rail Plan must be understood within the context of the development of multi-modal transportation corridors in the Commonwealth for passenger and freight movement, including rail, highways, aviation, and waterborne transportation. The rail plan must also be understood within a multi-state and national transportation corridor context. Passenger and freight traffic along Virginia's key transportation corridors (I-64, I-66, I-77, I-81, I-95, and Routes 13, 17, 29, 58, 220, 220 and 460) incorporates more than internal movements within the Commonwealth. It also includes significant movements from interstate travel and commerce, and Virginia's major global passenger and freight connections through Dulles International Airport and the Ports of Hampton Roads.

Virginia's major transportation corridors are heavily used for both local and long distance travel. I-95 stretches from Washington, D.C. through Richmond to the North Carolina border. This highway is significantly congested in the Washington, D.C. and Richmond areas. The I-81 corridor lies in the western half of the state through the mountains and runs from West Virginia in the north to Tennessee in the south. The entire corridor will be experiencing significant congestion in 20 years. I-64 traverses the state east to west from Hampton Roads, passing through Richmond, and on to West Virginia. It is significantly congested in Richmond and Hampton Roads today and in the future will be congested in the Staunton area. Route 460 serves as a parallel road to I-64 and serves more of a local route. However, to avoid I-64, an increasing number of vehicles are using Route 460, especially to access areas of the state south of Richmond. The I-66 corridor runs from Northern Virginia west to I-81 and allows access to suburban and rural areas west of Washington, D.C. See the section on Highways for more discussion on actual traffic numbers and Level of Service.

According to a recent report, *America 2050 – A Prospectus*, most of the nation's rapid population growth, and an even larger share of its economic expansion, is expected to occur in ten or more emerging megaregions: large networks of metropolitan regions. These regions are connected by diverse factors such as environment, transportation facilities, economy, and cultural climate. Each megaregion covers thousands of square miles and by 2050, 70% of the population and economic growth is expected to occur in these regions. Megaregions are located in every part of the country. The 10 megaregions in the country are shown in Figure 3-1. A short description of each region follows:

- **Cascadia:** The vision for Cascadia links Seattle, Portland, and Vancouver, British Columbia with high-speed rail, while protecting the area's unique and pristine

environment. Other strategies highlight these cities' shared high-tech competencies, commitment to environmental sustainability, and creative clusters in film, music, and green building.

- **Northern California:** The high quality of life, cultural heritage, and environmental assets of the Northern California region make it an attractive (and expensive) place to live. How can sustainable land use be employed while limiting the skyrocketing cost of living?
- **Texas Triangle:** By 2050 about 35 million people, or 70 percent of the population of Texas, will live in the metropolitan areas that compose the Texas Triangle. Three of the nation's 10 largest cities are in the Triangle, including Houston, which has a port that handles more foreign tonnage than any other in the U.S. Cultural cohesion creates the potential for collaboration among the metro regions of the Triangle to address land use, transportation, and environmental concerns.
- **Southern California:** With some of the largest ports in the nation, the economy of Southern California is closely tied to the logistics and goods movement industry. This region is taking aggressive action to build infrastructure that enhances its role as a global gateway while providing opportunities for its fast-growing native-born and immigrant populations.
- **Arizona Sun Corridor:** The Sun Corridor is equivalent to Indiana in size and population but will add another Indiana's worth of residents by 2040. Located in a desert environment, Phoenix and Tucson (the megaregion's biggest metropolitan regions) have instituted water conservation requirements and are promoting the use of desert landscaping. These efforts provide the two metros with enough water for perhaps up to twenty million people, preparing the Sun Corridor for current and future growth.
- **Great Lakes:** The Great Lakes megaregion is exploring ways to grow its economy in face of the shrinking role of the manufacturing sector. The region's assets include the environmental resources and amenities of the Great Lakes and a strong research and cultural tradition tied to its leading public universities.
- **Northeast:** The Northeast is a powerhouse of density and economic output, producing 20 percent of the nation's Gross Domestic Product with 18 percent of the population and only two percent of the nation's land area. Over the next generation, the Northeast will add 18 million new residents. This population growth will demand infrastructure investments and economic growth to accommodate these new residents while preserving quality of life.
- **Piedmont Atlantic:** The low cost of living and high quality of life in the Southeast are two reasons for this megaregion's booming population, which is anchored by Atlanta but stretches east to Raleigh, North Carolina and west to Birmingham, Alabama. The region is facing challenges associated with its growing population, such as increased traffic congestion, runaway land consumption, and inadequate infrastructure, which it hopes to address with sustainable solutions.
- **Gulf Coast:** The devastation of Hurricanes Katrina and Rita and the displacement of victims along the I-10 corridor highlighted the environmental, transportation, and economic links of the Gulf Coast. Despite the recent destruction, the region is expected to grow due to the continued in-migration of retirees from the Midwest.

- **Florida:** The Florida megaregion is one of the fastest growing in the nation and possesses a wealth of diversity, with six of every 10 new residents in the last decade coming from foreign countries. It is both dense and populous, with the major international city of Miami acting as a gateway to Latin America. Regional strategies to protect the Everglades have preserved the natural heritage of the state.

As seen in Figure 3-1, Virginia is part of, and a vital transportation link between, the Northeast and Piedmont Atlantic megaregions. Virginia will become the buffer between the different economic cultures of these two regions.

Improvements in the national and state rail system could include the following benefits:

- The diversion of auto and truck traffic to rail to improve public safety and air quality by reducing congestion and greenhouse emissions, which affect climate change and health.
- The diversion of air travel passengers to passenger rail to reduce congestion occurring in the nation's airport system and to provide a cost-effective and timely alternative for intercity travelers.
- Improved passenger and freight rail service to help reduce the negative impacts to individuals and the economy of short or prolonged energy supply disruptions and/or energy price increases.
- Land use and travel pattern changes for both passenger and freight movements can improve air quality, water quality, and aesthetic appeal.
- Rail improvements to provide mobility and economic development opportunities to smaller communities and rural areas with little or no other access to passenger or freight transportation.
- The availability of an improved rail system to ensure a redundant transportation mode for use in emergency situations involving natural disasters, terrorist attacks, and military response and readiness for war time situations.
- Passenger rail to provide a mobility option for individuals who cannot or choose not to drive or fly.
- Freight rail to provide an option to companies who cannot or choose not to use trucks and the highway system for the transport of cargo.

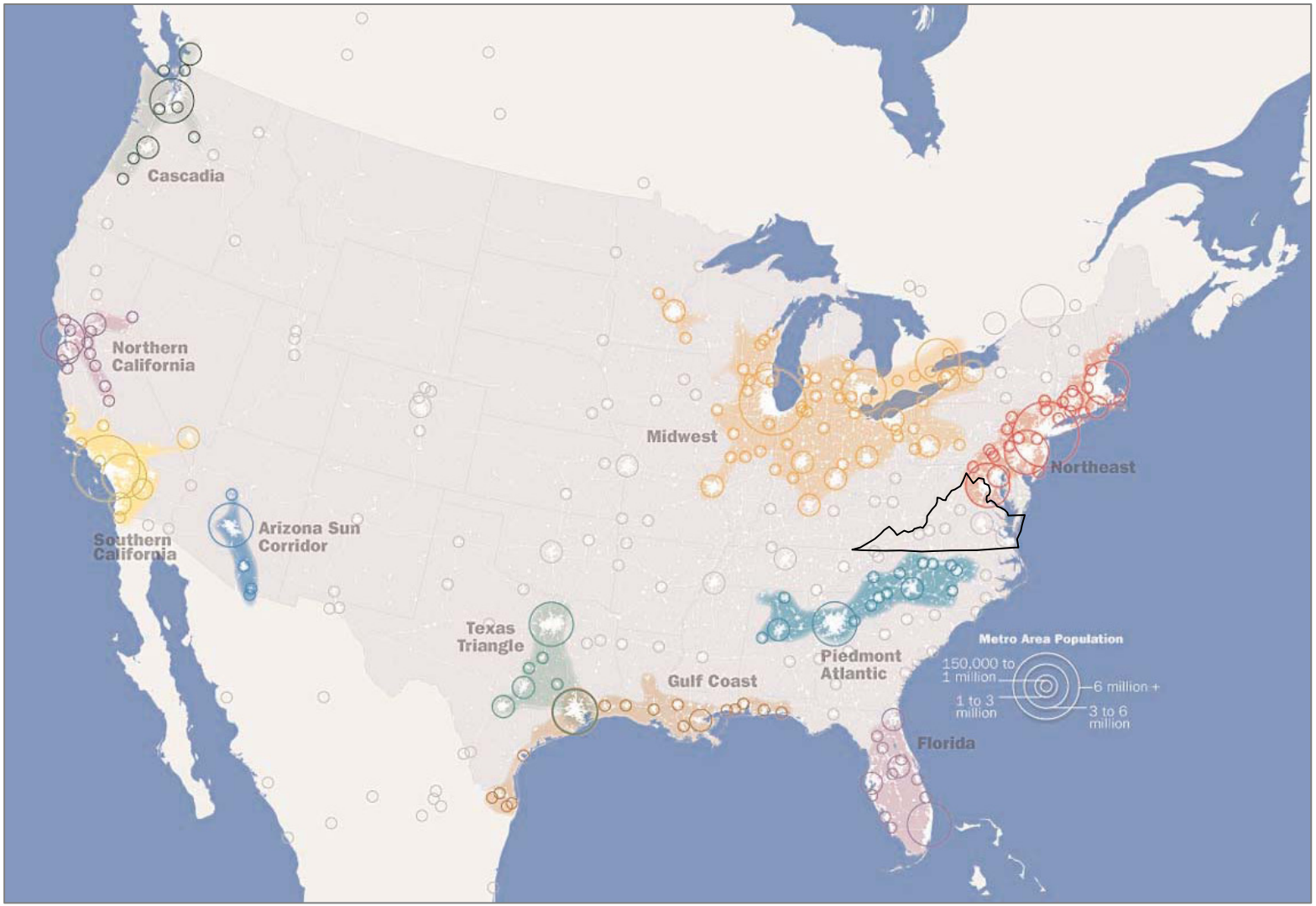


Figure 3 - 1 National Megaregions
(Source: *America 2050 – A Prospectus*)

3.3. Multimodal Considerations

Virginia must plan today to support its future prosperity. Additional economic and population growth means that travel demand will continue to increase significantly over the next twenty years. Virginia's transportation system functions reasonably well today as a result of investments made more than ten to twenty years ago. The costs for maintaining roads, rail, transit, port, and aviation networks are increasing and compete with limited dollars for new investments. According to *Virginia Performs,* Virginia's goal is to ensure that the transportation system is safe, enables easy movement of people and goods, enhances the economy, and improves quality of life. Virginia has the third largest state-maintained highway system in the nation. The Port of Virginia, Dulles International Airport, and the I-81 and I-95 corridors are both gateways to international markets and major economic engines for the state.

The vast majority of freight is moved by truck, followed by rail, as shown in Figure 3-2. This graphic depicts that by far, most freight is presently moved by truck, in comparison rail carries less than 25% of what trucks carry.

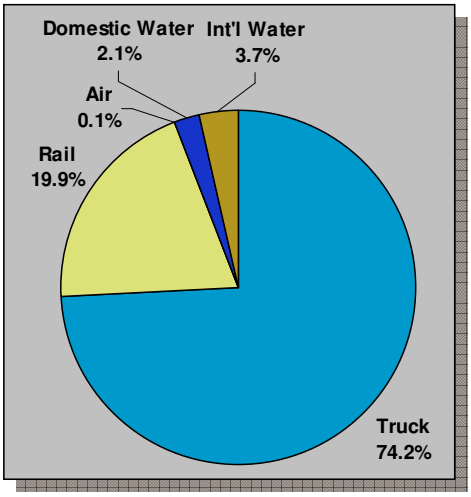


Figure 3 - 2 Virginia Freight Movements by Mode

The single occupant vehicle is the predominant mode of choice for daily commuting, followed by carpool and public transportation, as shown Figure 3-3. This graphic also depicts that three times as many people carpool than use public transportation. It should be noted that public transportation covers all forms of public transportation, including bus and rail.

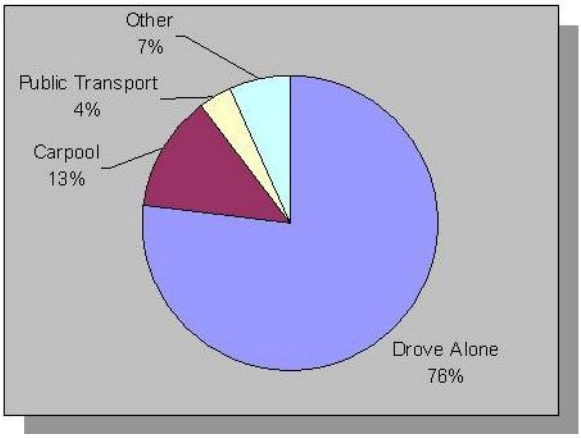


Figure 3 - 3 Virginia Commuter Movements by Mode

Figure 3-4 breaks the public transit piece of the pie found in Figure 3-3 into the different available modes in Virginia. As can be seen in this graphic WMATA, Washington D.C.'s commuter rail, has the largest ridership of any of the facilities in the state.

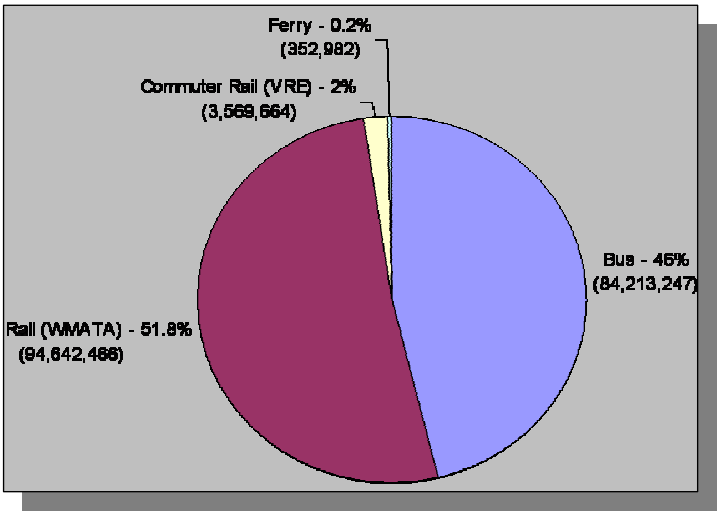


Figure 3 - 4 Virginia Transit Mode Share

3.3.1. Highways

Virginia ranks 16th in the nation in the overall cost-effectiveness of its highway system. The Washington, D.C. metro area, including Northern Virginia, is one of the most congested areas in the nation. Traffic congestion presents more than a headache for commuters; it has a negative impact on the delivery of goods and services, and on the general well-being of citizens. Los Angeles is the most congested city with an average of 70 hours of delay per traveler per year. The Washington, D.C. metropolitan area is second with an average of 62 hours of delay per traveler per year and Atlanta, GA is third with an average of 57 hours of

delay per traveler per year. The Hampton Roads area also experiences high levels of congestion.

Virginia's average commute time to work in 2007 was 26.8 minutes, the eighth highest in the nation. While higher than North Carolina (23.3 minutes) and Tennessee (23.8 minutes), the average time is slightly lower than Maryland's (31.1 minutes). The national average is 25.3 minutes. North Dakota had the least traffic delays of all states with an average commute time of 16.1 minutes as shown in Figure 3-5.

Lane-mile use has increased over time; since the mid-1960s Virginia has experienced a decline in both lane-miles relative to population and lane-miles relative to state gross domestic product (GDP). Locally, the U.S. Census measured average commute time for 28 of Virginia's larger counties and cities in 2007. The highest average commute times were all in the Northern Region with Stafford County (41.3 minutes),Spotsylvania County (39.8) and Prince William County (37.1 minutes) having the highest commute times. Lynchburg City (16.1 minutes) in the West Central Region had the lowest commute time among the localities measured in the Commonwealth.

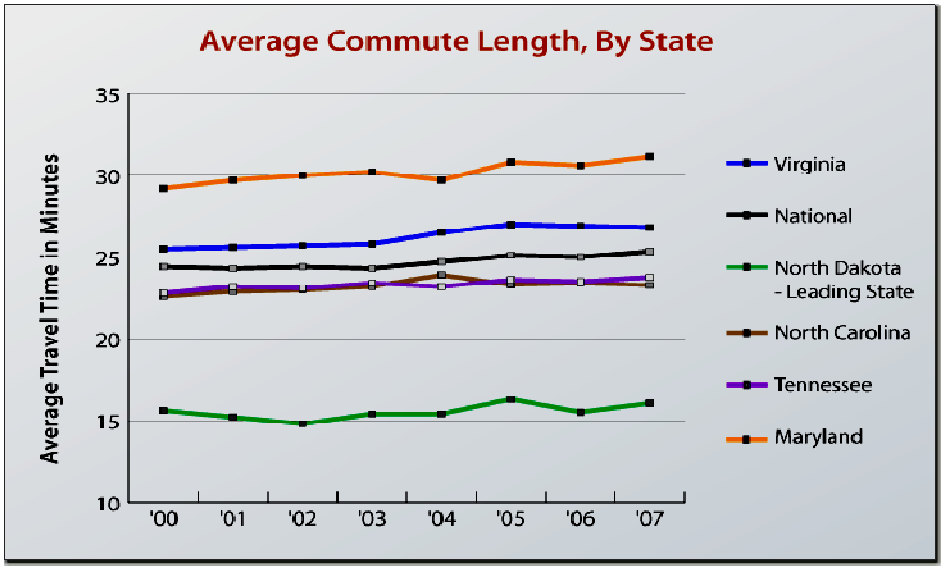


Figure 3 - 5 Average Travel Time to Work by State
(Source: *Virginia Performs)*

In 2008, 25.9 percent of Virginia's bridges were functionally obsolete or structurally deficient, placing the state at 29th lowest in the nation for percent of deficient bridges. (Note: Functionally obsolete or structurally deficient bridges are not necessarily unsafe.) Virginia's rate was higher than Tennessee's 20.2 percent, but lower than that of either North Carolina or Maryland, which had 28.7 and 26.3 percent functionally obsolete or structurally deficient bridges, respectively. Arizona was the leading state at 11.2 percent; the national average in 2008 was 25.2 percent.

Today as a result of increased travel demand, 47 percent of Virginia interstates and 13 percent of the primary systems lane miles are deficient in terms of congestion capacity while vehicle miles of travel indicate that travel on Virginia's roads is outpacing the national average. The cost of construction for new roads is challenged by rising maintenance costs

that receive the first spending priority and consume approximately 42 percent of the Virginia Department of Transportation's budget. If just the highway construction monies are considered, maintenance takes 75 percent of the total. The Commonwealth also recognizes that it cannot pave its way out of congestion. The Commonwealth must have a balanced transportation investment plan given the goals related to land use and the environment.

Figure 3-6 shows the Virginia Average Annual Daily Traffic (AADT) (all vehicle types) for all segments of a given route as bar columns, and the corresponding average truck percentages as points with a line for the top 30 transportation corridors and roads in Virginia.

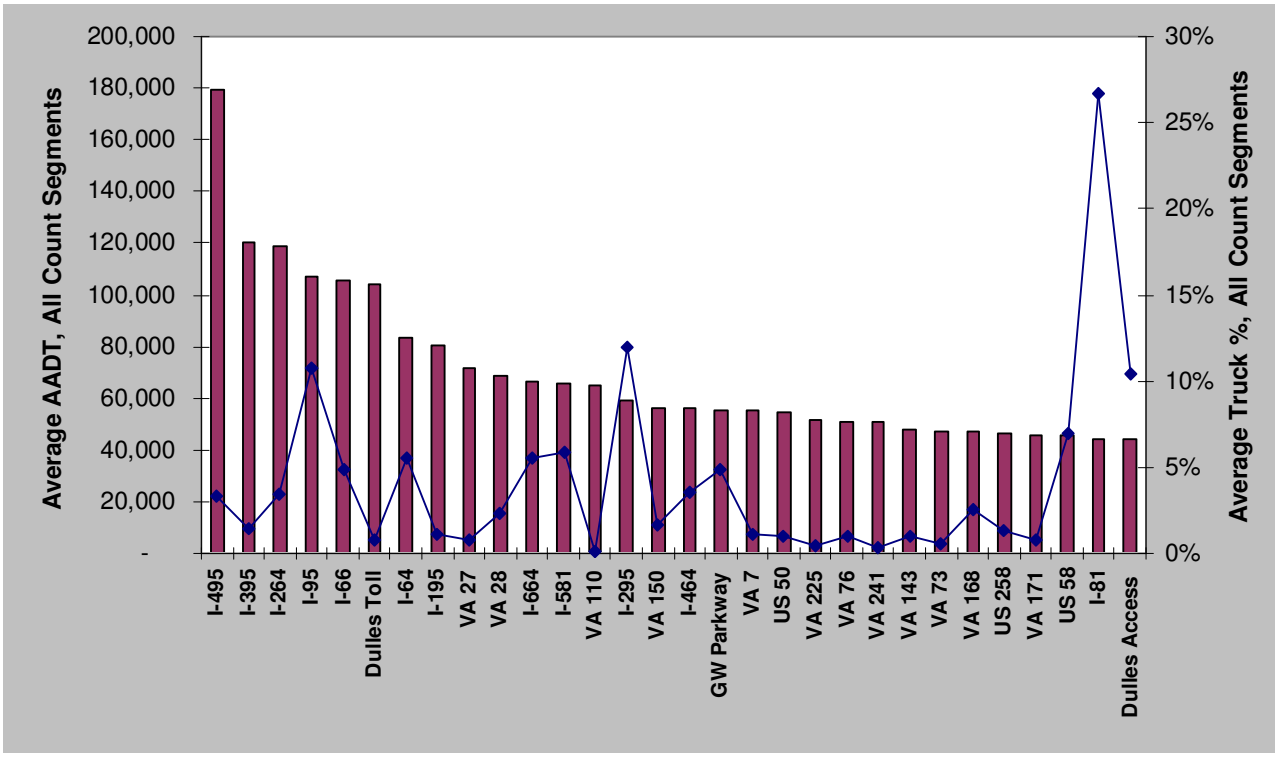


Figure 3 - 6 Average Total AADT and Truck Percentages (2005 Data)
(Source: Cambridge Systematics)

The top 10 routes on the basis of average AADT are: I-495 (the Capital Beltway); I-395; I-264; I-95; I-66; the Dulles Toll Road (VA 267); I-64; I-195; VA-27; and VA-28. Of these, only I-95 has a truck percentage exceeding 10 percent. Among other top 30 AADT routes, the highest average truck percentages are found on I-81 (27 percent), I-295 (12 percent), and the Dulles Airport Access Road (10 percent). Trucks actually represent a relatively low percentage of AADT on most of Virginia's most heavily used highways.

Highway congestion is often evaluated in terms of Level of Service (LOS) with grades varying from A to F. An LOS of "A" is free-flowing traffic with no delays, and LOS of "F" is essentially gridlock. Grades D, E and F are all associated with significant and increasing congestion. As can be seen in Figure 3-7, metropolitan areas like Washington D.C., Richmond and Hampton Roads are experiencing a level of congestion that causes traffic delays and backups. Figure 3-8 shows project LOS of state highways in 2035. From this

graphic, assuming no improvements to the highway capacity, the level of congestion will spread from the metro areas into the main transportation corridors causing traffic delays statewide.

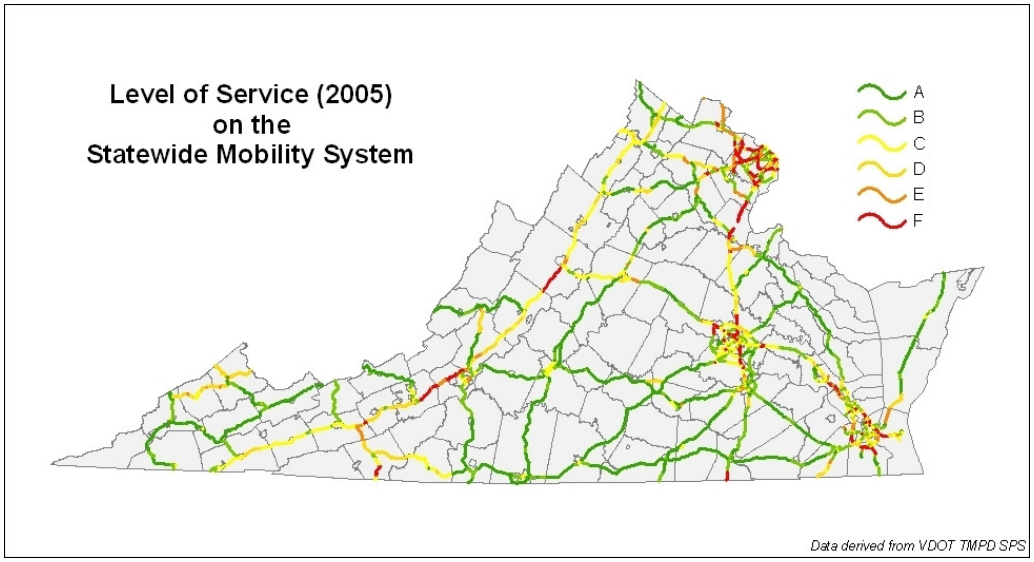


Figure 3 - 7 Highway Congestion in 2005.

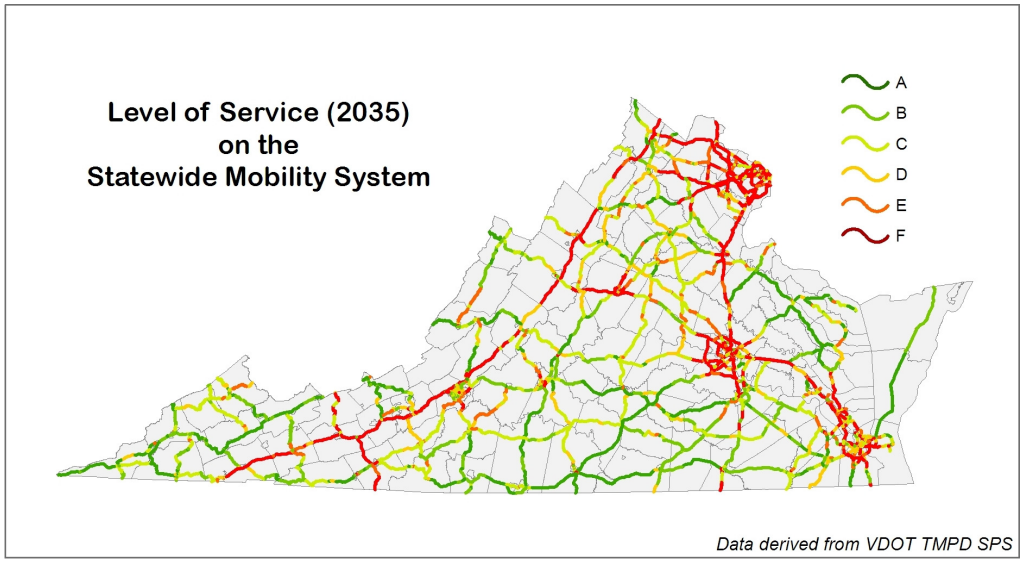


Figure 3 - 8 Projected Highway Congestion in 2035.

3.3.2. Ports

The Port of Virginia is the second largest port on the East Coast. The Port has three general cargo marine terminals: Norfolk International Terminal, Portsmouth Marine Terminal, and Newport News Marine Terminal. In 2008, the Port handled 2.1 million (five percent) of the nation's 43 million 20-foot equivalent units (TEUs), the standard measure of container terminal capacity. The Port of Virginia's TEU growth in containerized cargo is expected to increase by 350 percent between 2005 and 2035. Current VPA terminal capacity is limited to approximately 3 million TEUs per year and will reach full operating capacity by 2011 unless improvements are made.

In the 10-year period (1998-2007), the total volume of container traffic through the Port of Virginia marine terminals has increased at an average annual rate of 5.74 percent. With the scheduled opening of the Heartland Corridor in early 2010, the recent clearance of the CSX double stack (standardized cargo container boxes stacked two high on rail cars) rail route to Atlanta, and the planned addition of a third series of locks in the Panama Canal by 2014, this growth trend is expected to continue. For planning purposes, an annual rate of 4.3 percent has been used for future projections; this represents a "moderate" growth scenario compared to the past. According to VPA's 2040 Plan, the growth rate projections varied from a "low" scenario of 3.5 percent to a "high" scenario of 7.5 percent growth per year in container traffic. To meet the increased volume of container traffic, the Port has developed a multi-faceted strategy to increase the capacity and efficiency of its terminals. This includes replacing obsolete and aged infrastructure through a series of projects that will increase the number of ship berths, expand container yards and increase rail capacity.

The use of rail is a significant part of the Port of Virginia's plan to enhance the efficiency and cost effectiveness of shipping. In fact, the Port already moves a higher percentage of containers by rail than any other East Coast port. Rail volume in 2007 increased 20 percent and remains the fastest growing sector of the Port's growth.

The Port will need to add capacity to maintain market share. A new private marine terminal, APM Terminals, opened in 2007. The Virginia Port Authority (VPA) plans to construct a fourth terminal, Craney Island Marine Terminal, which is scheduled to open its first phase in 2017. These new facilities coupled with expansions and renovations at existing facilities, such as Norfolk International Terminals, will allow the Ports of Hampton Roads to accommodate over eight million TEUs per year by 2035. This capacity will position the Port as the largest on the East Coast based on current TEU numbers. The majority of cargo moving in and out of the Port is transported by trucks.

As the only VPA terminal with "on-dock" rail service, Norfolk International Terminals (NIT) handles the vast majority of the intermodal container traffic. In 2007, NIT shipped by rail 289,000 TEU's (or 25.6 percent of total TEU volume at the terminal) – this is equivalent to 165,000 trucks off the highway system. VPA expects the total TEU volume at NIT to increase to 1.85 million TEU's by the year 2017, when the proposed Craney Island Marine Terminal comes on line. Based on a projected 30% volume of TEU's moved by rail, it is expected that 554,608 TEU's will move by rail from NIT in 2017 - equivalent to 317,000 trucks off the highway system. When fully developed by 2035, the Craney Island Marine Terminal will handle approximately 2.4 million TEU's per year. VPA's goal is to ship 50 percent of TEU's at Craney Island by rail, which would be approximately 1.2 million TEUs per year – equivalent to 686,000 trucks off the highway per year from this terminal alone.

This growth in rail traffic would require 300 new intermodal trainsets based on current modal percentages at the Ports of Hampton Roads.

3.3.3. Aviation

The aviation industry in the United States is struggling and there is no doubt that fundamental changes are underway that will impact future travel. The events of September 11, 2001 had a significant negative impact on the aviation industry. Competition and significantly rising fuel costs represent the latest major challenge for airlines. Competition between airlines is forcing them to look for new revenue sources in order to keep ticket prices down (baggage charges, for instance). Historically, fuel represented approximately 25 percent of the airline industry costs. Since last year the cost of a gallon of airline fuel has increased by 73 percent. In the last two years, ten airlines have filed bankruptcy and seven have gone out of business.

Given the aforementioned issues in the aviation industry, it is clear that there will be reduced frequencies of service, increased travel times, and increased fares. Figure 3-9 gives the typical travel time (not including the time required for advance check-in at each departure), connections, and costs for flights originating in Bristol, Roanoke, Lynchburg, Charlottesville, and Newport News, terminating in either Washington, D.C. or Richmond. Additionally, a few of the aviation routes are shown graphically in Figure 3-9 along with their travel time and cost versus the same trip via Amtrak passenger rail service. Other than a few selected cities, there are few direct flights, so airline travelers must first fly to a hub airport in another state and then return to Virginia by a connecting flight.

3.4. Land Use, Natural Resources, and Environmental Influences

The nation is in the early stages of a major change in transportation, the economy, and ultimately quality of life. There is global competition for finite resources of oil and coal. Crude oil prices averaged $72.00 per barrel in 2007. In late June 2008, the price for crude oil increased to approximately $135.00 per barrel - an increase of 88 percent. In late October 2009, the price for crude oil is approximately $78.00 per barrel based upon the economy showing signs of growth again. China and India are making significant investments in infrastructure and are emerging as strong competitors in the global economy. India's middle class population alone is equal to the total population of the United States. We must find a way to become more energy efficient and reduce greenhouse gases. This section discusses land use, natural resources and the environment within the context of statewide transportation goals and multimodal planning process for all modes.

The purpose of Virginia's transportation system is to link regions and service communities by moving people and goods throughout the state. Infrastructure construction must not come, however, at the expense of Virginia's vast natural and cultural resources. Virginians have communicated that they do not want to sacrifice the environment or quality of life for transportation improvements. Virginia's transportation agencies are dedicated to designing and operating a system that seamlessly integrates into communities while protecting the assets of every community throughout the Commonwealth. The plan also includes rail improvement projects that will improve national energy efficiency, ands increase the use of coal to both domestic and global markets (CFR § 266.15 FRA Requirements for State Rail Plan – [c.11A] improvements to national energy efficiency).

Departure	Connecting Flight(s)	Destination	Cost	Time*
Roanoke	Nonstop	Washington, DC	$755	1 hr. 5 mins.
Charlottesville	Nonstop	Washington, DC	$461	48 mins.
Richmond	New York, NY	Washington, DC	$282	3 hrs. 6 mins.
Lynchburg	Charlotte, NC	Washington, DC	$481	3 hrs. 59 mins.
Bristol (Tri-Cities)	Charlotte, NC	Washington, DC	$385	3 hrs. 44 mins.
Newport News	Philadelphia, PA	Washington, DC	$216	3 hrs. 33 mins.
Washington, DC	New York, NY	Richmond, VA	$282	3 hrs. 6 mins.
Roanoke	Atlanta, GA	Richmond, VA	$825	4 hrs. 15 mins.
Charlottesville	New York, NY	Richmond, VA	$676	4 hrs. 18 mins.
Lynchburg	Atlanta, GA	Richmond, VA	$830	6 hrs. 0 mins.
Bristol (Tri-Cities)	Charlotte, NC	Richmond, VA	$555	2 hrs. 53 mins.
Newport News	Atlanta, GA	Richmond, VA	$329	4 hrs. 25 mins.

* Note: Time does not include the 1.5 hours recommended before departure for check-in and security screening for each departure (an additional time of approximately three (3) hours per trip).
(Source: Yahoo Travel, June 2008)

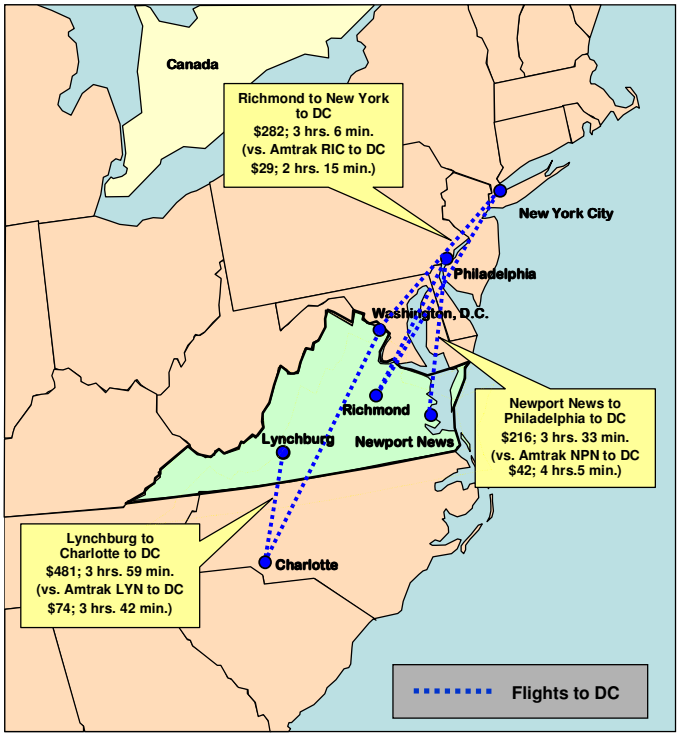


Figure 3 - 9 Sample Time and Costs for Airline Trips to Washington, D.C. and Richmond from Selected Virginia Cities

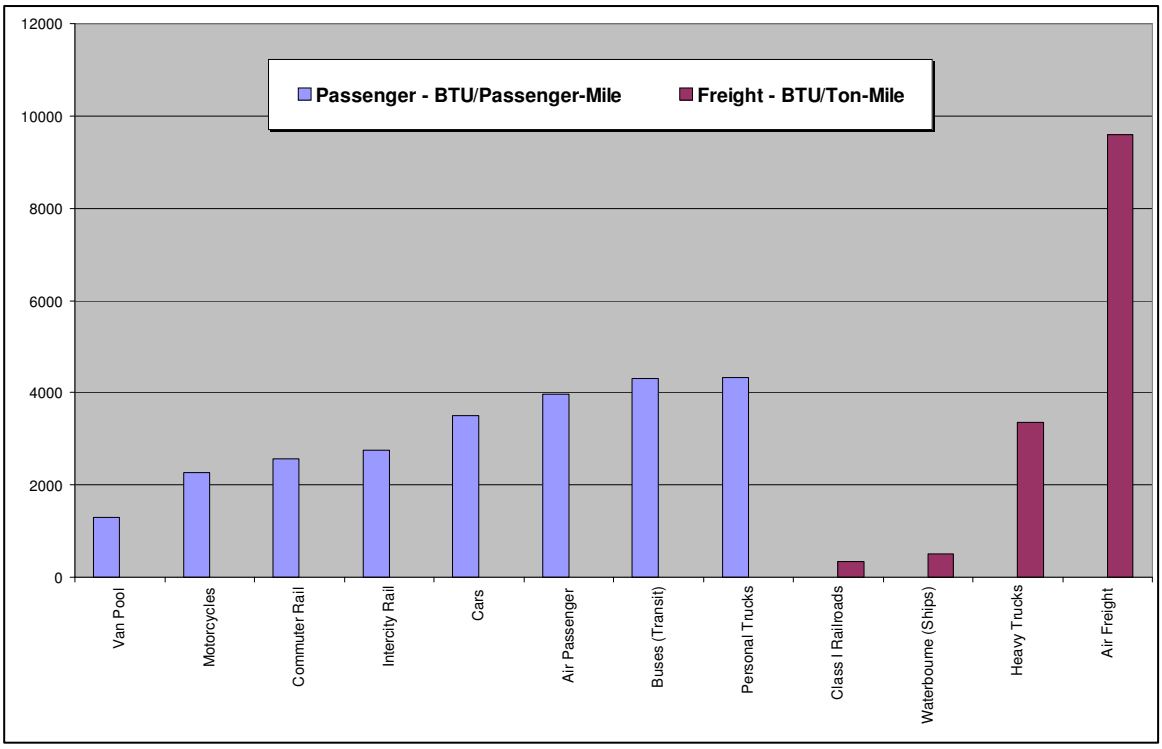


Figure 3 - 10 Fuel Efficiency in Transportation
(Source: U.S. Department of Energy)

The rail system in Virginia has essentially remained the same since 1920 (prior to the development of the interstate and national highway system). Other than improvements within existing rail right-of-way, or immediately adjacent to existing track locations, no new rail routes will likely be constructed in the future. Utilizing the existing system and making improvements to expand its capacity to meet future needs will preserve existing land uses, protect natural resources, and lead to environmental improvements by reducing air emissions (as compared to trucks) and reducing potential pollutants to our valuable waterway system as compared to truck and highway impacts.

According to the Association of American Railroads, greater use of freight and passenger rail offers a simple and relatively immediate way to reduce greenhouse gas emissions without adverse impacts on the economy. It can be seen in Figure 3-10 that the fuel efficiency of commuter rail is 27 percent more efficient than car for passenger travel and Class I Railroad is 90 percent more efficient than truck for freight movement. Railroads are typically three or more times more fuel efficient than trucks and railroads have a smaller carbon footprint. Every ton-mile of freight that moves by rail instead of truck reduces greenhouse emissions by 67 percent or more. Based on Federal Environmental Protection Agency (EPA) data, freight railroads account for 2.6 percent of the nation's greenhouse gas emissions from transportation sources and just 0.7 percent from all sources. Based on data from the American Association of State Highway and Transportation Officials (AASHTO), diverting 1 percent of long-haul freight that currently moves by truck to rail would result in

annual fuel savings of 110 million gallons, and annual greenhouse gas emissions would fall by approximately 1.2 million tons.

Railroads represent the most fuel efficient mode of ground transportation. In 2008, freight railroads moved a ton of cargo an average of 457 miles per gallon of fuel. According to the Association of American Railroads, railroad fuel efficiency has risen 94 percent between 1980 and 2008 due to new locomotive technologies, advanced R&D, innovative operating practices, employee training and diligence in complying with environmental laws and regulations. In 2008, Class I railroads used 3.7 billion fewer gallons of fuel, and emitted 41 million fewer tons of carbon dioxide, than they would have if their fuel efficiency and operating procedures had remained at 1980 levels.

3.5. VTrans2035

VTrans2035, the Commonwealth's statewide long-range multimodal transportation plan, is being updated by the Office of Intermodal Planning and Investment with the support of the five state transportation modal agencies: Department of Rail and Public Transportation, Department of Aviation; Department of Transportation, Department of Motor Vehicles and the Virginia Port Authority. The Statewide Rail Plan will be a key input into the VTrans2035 update.

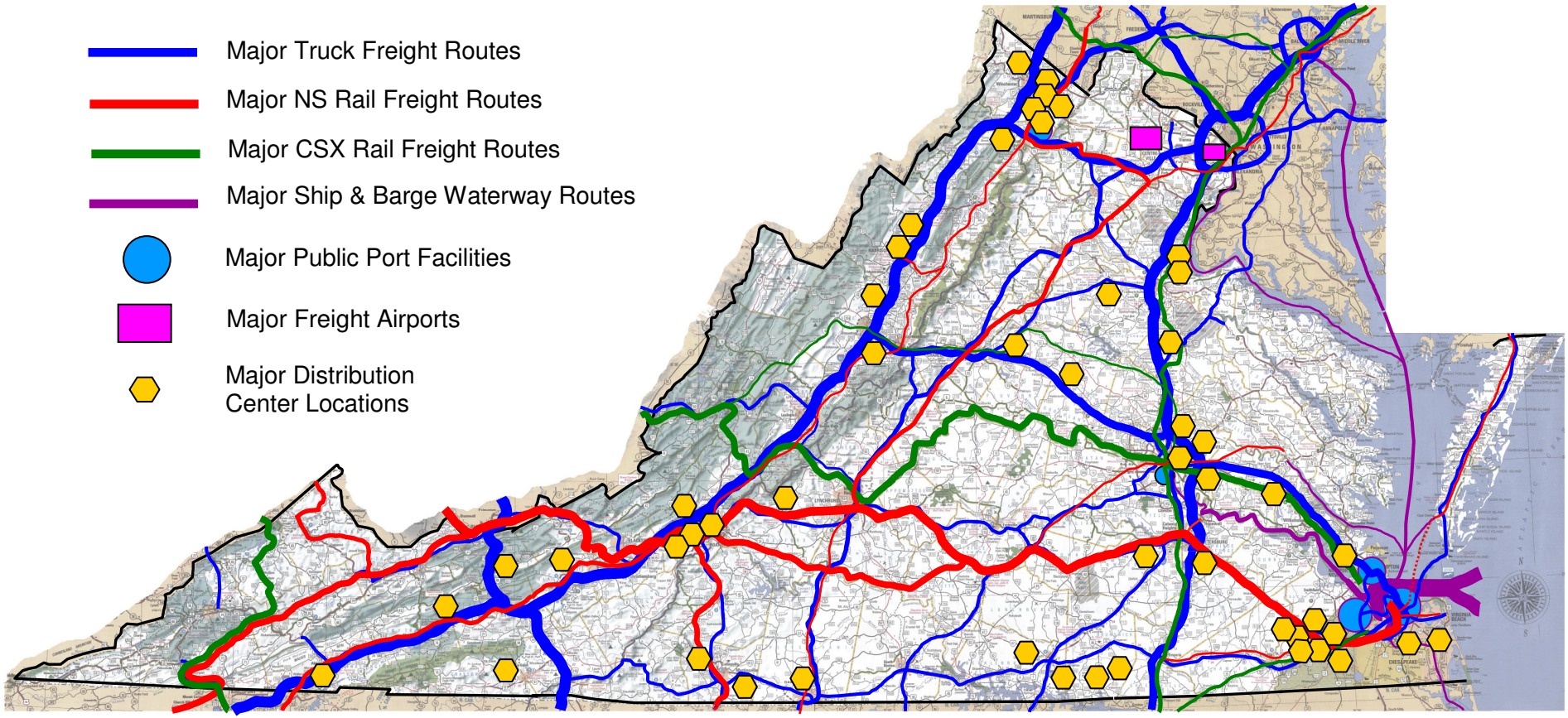
VTrans2035 is being updated in conjunction with the Federal Highway Administration (FHWA), Metropolitan Planning Organizations (MPOs), and other key stakeholders across the Commonwealth. This coordinated effort will ensure a well-balanced plan that evaluates pressing transportation issues across the entire state and across all modes. VTrans2035 will begin by looking at the accomplishments of VTrans2025, the current statewide long-range multimodal transportation plan that was completed in 2004. Figure 3-11 depicts the multimodal transportation network developed during the original VTrans2025 study. The VTrans2035 update will:

- Validate the vision and goals set forth in VTrans2025
- Conduct an inventory of the existing transportation system, across all modes
- Examine socioeconomic and demographic trends
- Explore the long-term viability of the motor fuels tax
- Explore through a series of issue papers pressing transportation policy and topics such as safety, system preservation, freight mobility, accessibility/connectivity, land use, regionalism, economic development, technology, congestion and environment
- Determine the economic impact of transportation investments
- Examine the adequacy of transportation funding
- Look closely at the characteristics and deficiencies of corridors of statewide significance
- Identify strategies to improve movement through and between the corridors using modal plans to select the best strategies
- Integrate agency modal plans into a comprehensive and cohesive Statewide Plan
- Include extensive public and stakeholder involvement

Initial recommendations from planning conducted as part of the VTrans2035 effort that impact transportation in the Commonwealth include:

- Improve efficiency of corridors of statewide significance across the Commonwealth
- Improve access management to reduce conflicts
- Remove bottlenecks
- Move more cargo by alternatives other than trucks
- Use technology
- Implement public investments in the private sector that produce public benefits
- Use DRPT's Rail Enhancement Fund as a model

VTrans 2035 will incorporate a surface transportation (highway, transit and travel demand management), rail, port and aviation plans. As one of the modal plans that will be incorporated into VTrans 2035 this VSRP addresses the goals as indicated utilizing the state transportation planning process. The VSRP was developed based on the significant statewide multimodal transportation corridors and provides the Commonwealth with a balanced modal approach to the movement of people and goods. This plan recommends the best rail infrastructure investments utilizing a clearly defined process that takes into account cost, funding sources, safety, congestion and the environment. VTrans 2035 is a progressive approach to transportation planning that not only utilizes traditional transportation planning and modal optimization methods but also considers land use regulations, environmental regulations and other non-traditional tools to achieve transportation goals.



Note: Thickness of lines denotes relative cargo volume for each mode.

Figure 3 - 11 Major Freight Corridors in Virginia

3.6. Six-Year Improvement Plan

The Six-Year Improvement Plan (SYIP) includes funding for rail transportation, commuter and public transportation, and all interstate and primary highway projects that are being studied, designed, and constructed throughout Virginia over six fiscal years. Fiscal years start on July 1 and end on June 30. The current SYIP and this Statewide Rail Plan cover the six-year time frame from FY2009 to FY2014. This Statewide Rail Plan also covers the 25 year long range planning and vision that will be included in the VTransS2035 update.

The Commonwealth Transportation Board (CTB) updates the SYIP each year as priorities are revised, project schedules and costs change, and study results become known.

All projects in the SYIP that are eligible for federal funding will be included in the Statewide Transportation Improvement Plan (STIP), which documents how Virginia will obligate its share of federal funds.

DRPT's process within the Six-Year Improvement Plan differs from the VDOT process in two key areas:

- DRPT advances projects primarily through partnerships with local and regional governments and private entities in Virginia.
- DRPT funds a portion of rail and public transportation project costs, with a share of expenses borne by localities, or the grantee.

DRPT provides leadership, advocacy and funding support for initiatives across the Commonwealth by working with partners at the local, regional, state and federal levels. The agency also prepares statewide rail and public transportation plans and conducts studies to assess the feasibility and environmental impacts of new and expanded services in Virginia. DRPT works closely with private railroads, service operators and Metropolitan Planning Organizations (MPO) to plan and program new services and capital improvement projects.

DRPT provides technical expertise and assistance in project preparation and then accepts requests for funding when projects are ready for implementation.

4. RAIL DEVELOPMENT IN THE U.S.

4.1. FRA Requirements

This Chapter of the Virginia Statewide Rail Plan (VSRP) presents information related to Virginia's Transportation Network in historical context. This is not a requirement of 49 CFR § 266.15.

4.2. The Rail Network

The history of American railroads can generally be divided into five historical phases based upon total railroad track mileage: 1) rapid growth 2) steady growth 3) Golden Age of Railroading 4) decline and 5) the Rail Renaissance.

4.2.1. Period of Rapid Growth

Between 1825 and 1850, American railroads grew quickly – from 23 miles in 1830; to 2,818 miles in 1840; to 9,021 miles in 1850. In 1860 mileage had tripled to over 30,635 miles. In the final 50 years of the nineteenth century, railroad mileage was increasing every decade, growing to 52,914 miles in 1870; 92,296 miles in 1880; and 163,597 miles in 1890.

4.2.2. Period of Steady Growth

In the early 1900s, the era of rapid growth had ended. Most of the railroad lines that exist today had been built. In 1900 the total mileage equaled 193,346 miles and in 1908 it stood at 231,540 miles. More than 90 percent of all railroad lines were owned and operated by a small group of very large railroads, which were designated by the Interstate Commerce Commission as Class I railroads. Three classes of railroads were established (Classes I, II and III) based on annual revenues, with the minimum threshold changing over the years.

4.2.3. Golden Age of Railroading

Class I railroad mileage reached a leveling-off period between 1920 and the 1950s. It stood at 229,530 miles in 1929, 220,915 miles in 1939, 214,486 miles in 1947 and 211,459 miles in 1955. From this point forward, railroad locations would remain essentially unchanged with only occasional minor modifications. This period was to become known as the golden age of American railroading, when passenger travel by rail was routine for most of the population and the railroads were seen as an essential component of the American economy.

4.2.4. Decline

The 1950s & 60s saw the exponential increase in the use of the automobile and the subsequent creation of the nation's vast interstate highway system by the federal and state governments. The new highway system had a profound impact on land use. The period also saw the development of a cost-effective and time efficient aviation system in which airports – also developed by federal and state governments - and airlines provided passenger services between major cities throughout the nation. As a result of automobile and airline developments, there was a dramatic change in America's railroad system. The decade was

characterized by the collapse and consolidation of many railroads, and by the abandonment of passenger service by nearly all of the surviving railroads.

In May 1971, after years of evaluation and planning, the National Rail Passenger Corporation (better known as Amtrak) assumed control of virtually every mile of non-commuter passenger service in America. Beginning in the 1960s, the total railroad mileage of the Class I rail lines fell dramatically and entered a period of rapid decline. In 1960, total Class I rail mileage stood at 207,334; then declined to 196,479 in 1970 and to 164,282 miles in 1980.

Prior to 1980, the railroad industry was a highly regulated industry. As noted in a U.S. Department of Transportation report in 1978, "The current system of railroad regulation … is a hodge-podge of inconsistent and often anachronistic regulations that no longer correspond to the economic condition of railroads, the nature of intermodal competition, or the often-conflicting needs of shippers, consumers, and taxpayers." In 1980, Congress passed the Staggers Act which significantly deregulated the industry and allowed railroads to operate much like other businesses in managing their assets and pricing their services. The Staggers Act allowed railroads to price competing routes and services differently, to enter into confidential contracts with their shippers, and to earn adequate revenues for their services.

The decline in rail mileage slowed in the early 1990s and in the last decade, there has been a leveling-off of railroad mileage. In 1990 rail mileage stood at 119,768 miles; 116,626 miles in 1991; 108,264 miles in 1995; 99,430 miles in 1999; and in 2007, Class I rail mileage stood at 94,112. A chart of the history of Class I freight railroad miles operated in the United States is shown in Figure 4-1.

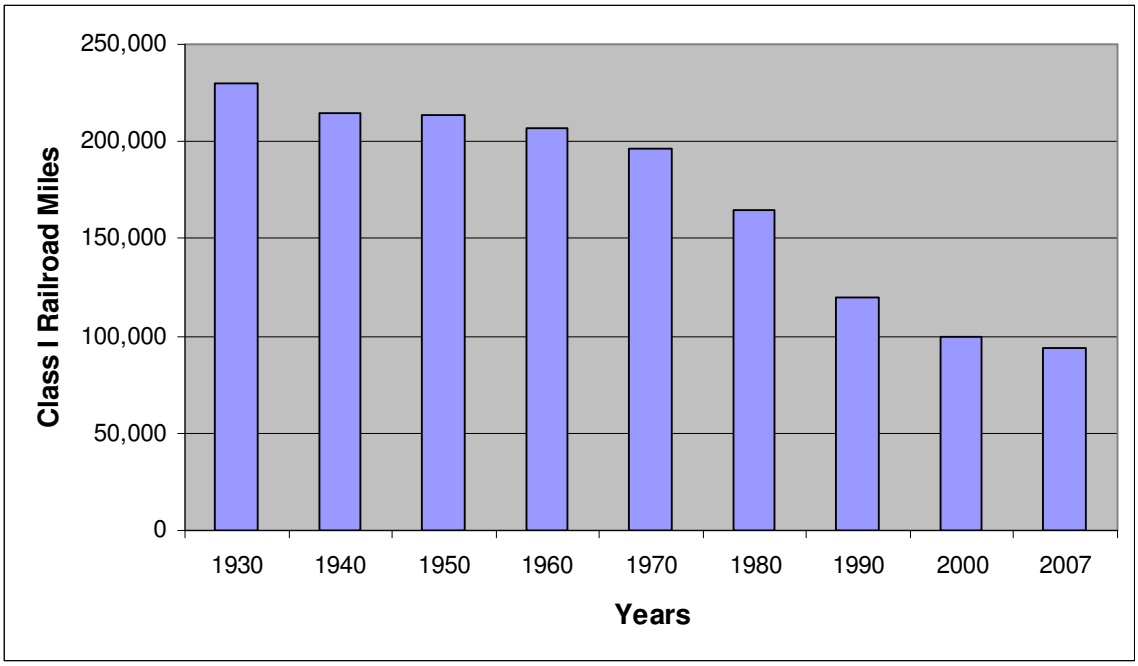


Figure 4 - 1 History of Class I Freight Railroad Miles Operated in the U.S.

4.2.5. Rail Renaissance

By the early 1990s, years of mergers and acquisitions had reduced the number of major Class I railroads in the United States to seven: the Burlington Northern (23,356 miles); Union Pacific (21,882 miles); CSX (19,565 miles); Norfolk Southern (15,955 miles); Southern Pacific (15,023 miles); Conrail (13,068 miles); and the Atchison, Topeka & Santa Fe (11,266 miles). In the late 1990s, the list was further reduced to four Class I railroads in the United States. In 1995, the Burlington Northern and the Atchison, Topeka & Santa Fe merged to form the Burlington Northern Santa Fe (BNSF). In 1996, the Union Pacific absorbed the Southern Pacific, and in 1998, CSX and Norfolk Southern divided and took over the operations and assets of Conrail.

As the Class I Railroads merged and consolidated their infrastructure, existing lines were abandoned or sold. New segment of the Rail Industry experienced a period of explosive growth as the surplus lines from the Class I Railroads were purchased by smaller local Shortline and Regional railroads, the Class II and III. These railroads were economically able to serve communities and shippers that the Class I railroads were too big to serve.

The new companies that resulted from the Class I mergers were larger and stronger and had the ability to use their infrastructure to take advantage of the globalization of the US economy and the resulting growth in shipping.

Implementation of the North American Free Trade Agreement (NAFTA) began in 1994 with all of the agreement provisions to be completed by 2008. This agreement removed most barriers to trade and investment among the United States, Canada, and Mexico and had a significant impact on rail freight operations in North America.

Some of the effects of the NAFTA agreement are:

- Trade with Latin and South America passes through ports, which in turn passes to truck and rail.
- 55 percent of the tonnage moving across the Mexican border is by rail.
- Latin American trade is expected to increase three-fold over the next 20 years.
- The transportation modes, like rail, that move bulk shipments are critical to economic and trade development.

Figure 4-2 shows the modal choices for major sectors alliance trade with Latin America. It can be seen that rail is the primary choice for transport of agriculture and natural resource freight.

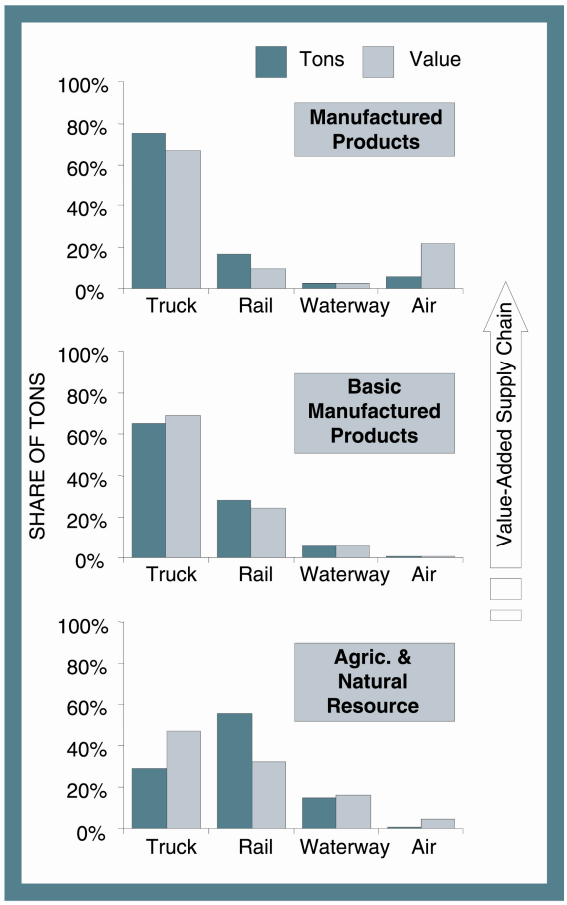


Figure 4 - 2 Modal Choices for Major Sectors Alliance Trade with Latin America

4.3. Freight Rail in the United States

According to the American Association of Railroads the current Class I freight railroads in North America are: two Canadian railroads - the Canadian National Railway (CN) and Canadian Pacific Railway; two Mexican railroads - Ferrocarril Mexicano and Kansas City Southern de México: and seven U.S. railroads, BNSF Railway, CSX Transportation, Grand Trunk Corporation, Kansas City Southern Railway, Norfolk Southern, Soo Line Railroad, and the Union Pacific Railroad. A map of the rail system in the U.S. is shown in Figure 4-3.

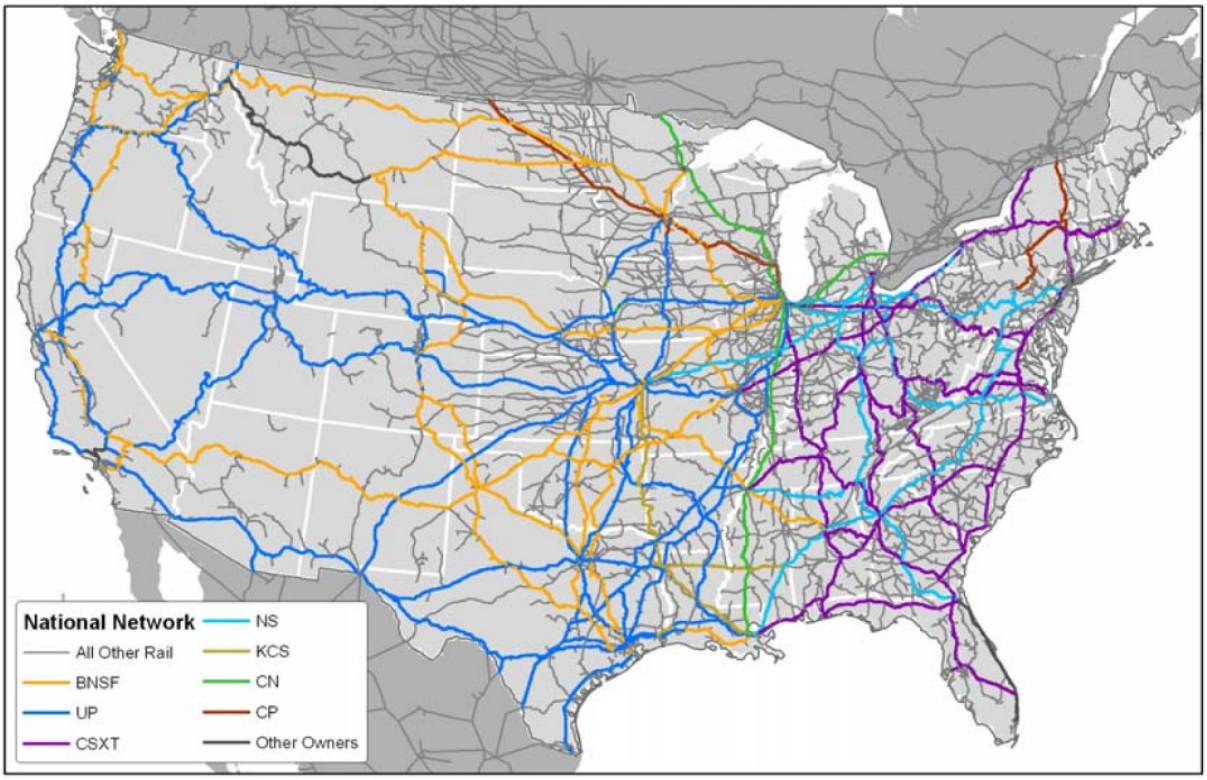


Figure 4 - 3 National Rail Network

The tons of annual cargo carried by the North American Class I railroads in 2006 are presented in Figure 4-4. The largest carriers in terms of annual tonnage in 2006 were BNSF Railway with 539.5 million tons and Union Pacific Railroad with 514.4 million tons.

Although miles of operated railroads declined significantly in the early 1900's, the freight carried by the railroads has dramatically increased – particularly after the Staggers Act of 1980. Figure 4-5 indicates the increase in ton-miles (total tons of annual cargo carried divided by the total rail miles) of the national rail system along with the concurrent decline in Class I freight railroad miles operated in the United States. Similar to highway congestion, where more vehicles are currently using the same number of lanes built in the past, railroads are also facing capacity constraint issues with more cargo being carried using the same amount of track miles as in the past. In 2007, approximately 1.8 trillion ton-miles of rail traffic occurred in the United States.

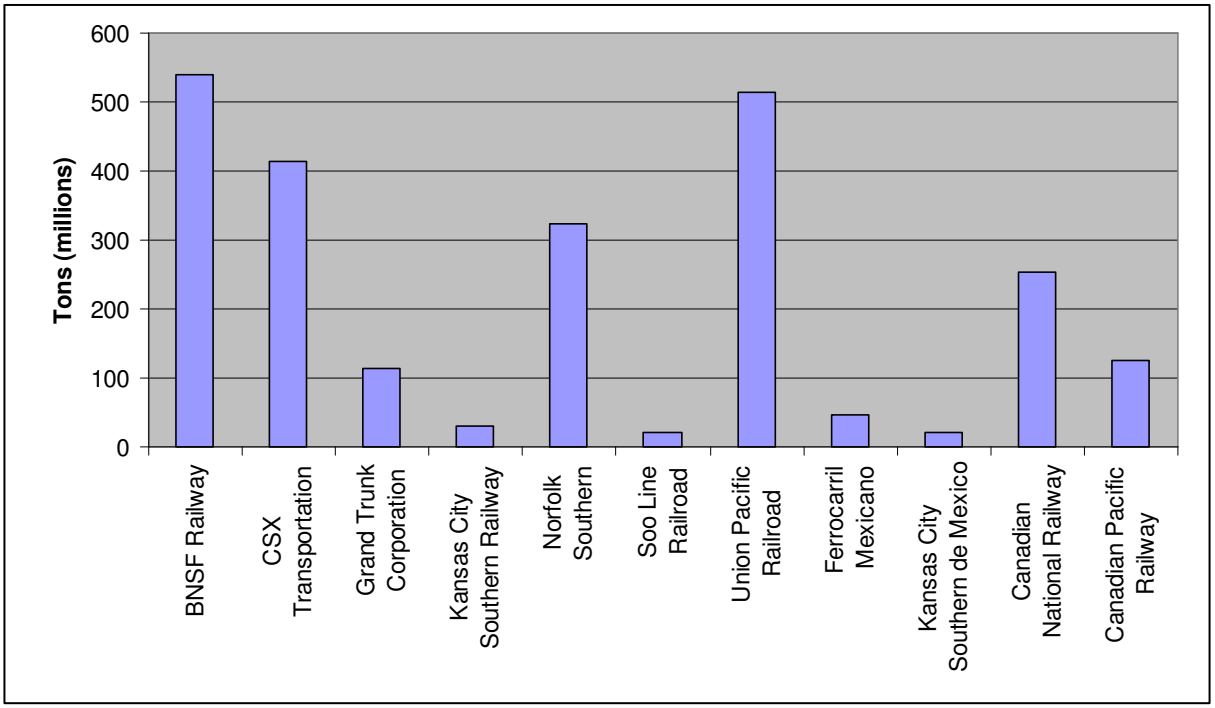


Figure 4 - 4 North American Class I Railroad Tonnage (2006)

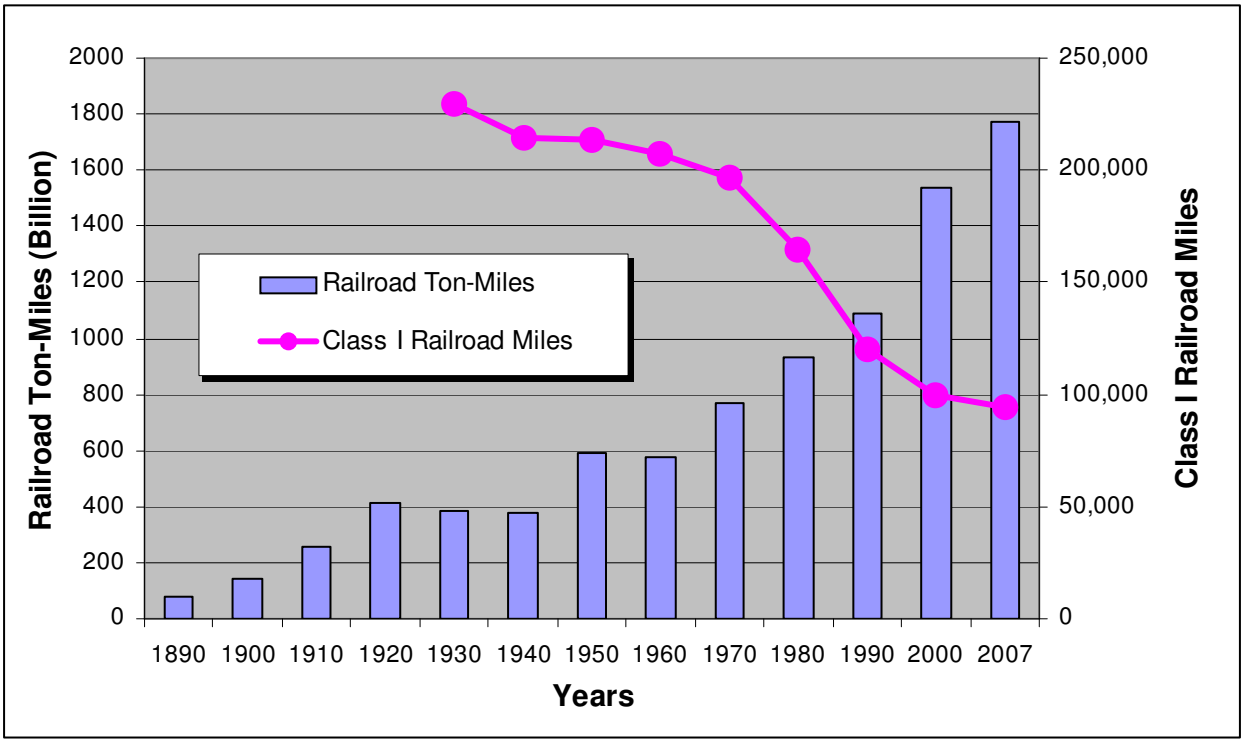


Figure 4 - 5 History of Freight Railroad Ton-Miles and Class I Railroad Miles

4.4. Passenger Rail in the United States

4.4.1. Amtrak Intercity Rail

According to data in the Association of American Railroads (July 2004) Overview of U.S. Freight Railroads Report, prior to Amtrak's creation by the Rail Passenger Service Act of 1970, intercity passenger rail service in the United States was provided by the same railroad companies that provided freight service. Intercity rail is a long distance passenger rail transportation system between at least two central cities. When Amtrak was formed, in return for government permission to exit the passenger rail business (and avoid the hundreds of millions of dollars in annual losses from passenger operations most Class I railroads were forced to incur), freight railroads donated passenger equipment to Amtrak and provided start-up assistance with a capital infusion of some $200 million. Today, Amtrak is the main U.S. intercity passenger rail carrier in the continental United States. It has operated a similar national network since the 1970s.

The majority of the 22,000 or so miles over which Amtrak operates are actually owned by the Class I freight railroads. (Amtrak owns approximately 750 miles of railroad, primarily from Boston to Washington, D.C., known as the Northeast Corridor). By law, freight railroads must grant Amtrak access to their track upon request and give priority status to Amtrak trains over other customers. Amtrak pays fees to freight railroads to cover the incremental costs of Amtrak's use of freight railroad tracks.

In 2009, Amtrak carried 27.2 million passengers, and experienced its eighth straight year of record passenger demand. Figure 4-6 displays Amtrak's annual ridership for each year since its inception in 1971 through to 2009. With increased fuel prices during 2008, Amtrak ridership spiked to a record 28.7 million passengers. Ridership in 2009 fell 5.2 percent below 2008 record levels but still higher than 2007.

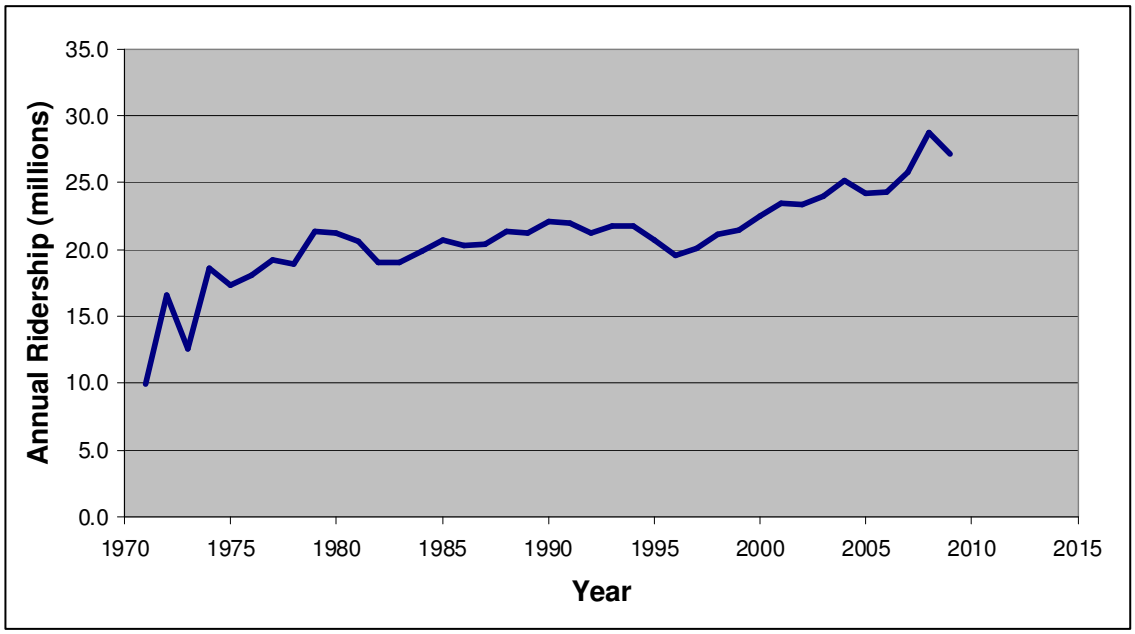


Figure 4 - 6 Amtrak Annual Ridership (1971 to 2009)

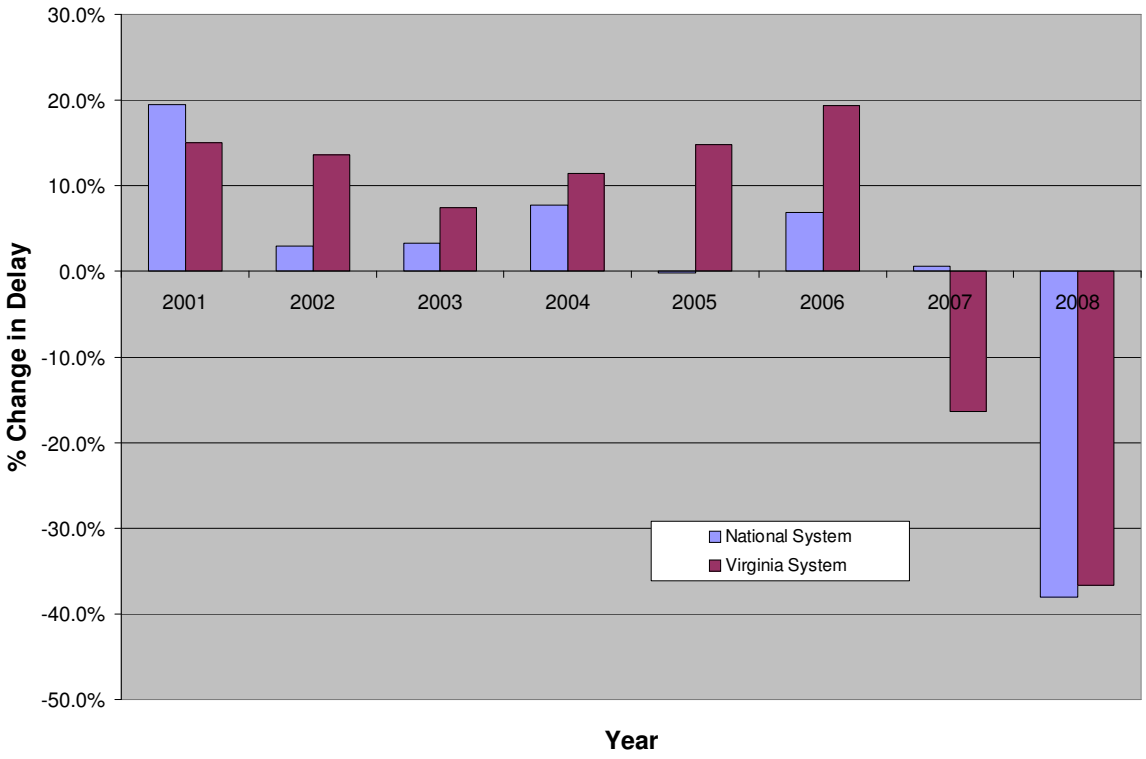


Figure 4 - 7 Amtrak Annual Delay Change from Previous Year (2001 - 2008)

The trend in annual delay for Amtrak trains is depicted in Figure 4-7, which is based on total minutes of delay for Amtrak trains within a year. For 2008, the national system experienced a 38.1 percent decrease and the Virginia system experienced a 36.6 percent decrease in total delay minutes. The recent decrease in delay within the Virginia system, coupled with the 2007 16.4 percent decrease, is a definite plus in the effort to achieve one of this Plan's congestion management goals of attracting passengers to the rail system from the highway system. Strategic investment in rail infrastructure can bring about this positive change.

4.4.2. Commuter Rail

According to the American Public Transportation Association (APTA), commuter rail transit services exist in 21 major metropolitan areas, and the number grows almost yearly. Commuter rail (also called metropolitan rail, regional rail, or suburban rail) is an electric or diesel propelled railway for urban passenger train service consisting of local short distance travel operating between a major city and adjacent suburbs. Figure 4-8 indicates the locations of commuter rail in the U.S. in 2005, including the Virginia Railway Express in Northern Virginia that serves Washington, D.C. Figure 4-9 lists the major commuter rail transit agencies in the nation with ridership, track miles, and number of stations. As can be seen from the figure, Chicago's METRA is the largest commuter rail agency in terms of track miles. However, New York's MTA LIRR is the largest in terms of annual ridership. Dallas's DART has the lowest amount of track miles and Anchorage's AARC has the lowest ridership.

Figure 4 - 8 Commuter Rail Locations in the United States (2005)

Primary City	Transit Agency	Track Miles	No. of Stations	Annual Ridership (1,000)	Annual Passenger Miles (1,000)
Anchorage, AK	Alaska Railroad Corporation (ARRC)	611.0	10	144.6	2,813.1
Baltimore, MD	Maryland Transit Administration (MTA)	471.0	42	6,884.1	209,155.1
Boston, MA	Massachusetts Bay Trans. Authority (MBTA)	648.4	126	37,890.2	755,587.5
Chicago, IL	Northeast IL Regional Commuter RR Corp. (METRA)	1,144.0	231	68,591.0	1,548,276.6
Chicago, IL	Northern Indiana Commuter Trans. District (NICTD)	130.4	20	3,802.4	106,356.4
Dallas, TX	Dallas Area Rapid Transit (DART)	20.7	4	1,324.7	15,343.7
Dallas, TX	Fort Worth Transportation Authority (The T)	22.6	5	826.4	13,007.9
Hartford, CT	Connecticut Department of Transportation (CDOT)	106.0	8	407.4	8,206.3
Los Angeles, CA	Southern California Regional Rail Authority (Metrolink)	640.1	54	10,693.3	359,938.2
Miami, FL	South Florida Regional Trans. Authority (TRI-Rail)	104.0	18	2,800.4	84,532.2
New York, NY	Metro-North Commuter Railroad Co. (MTA-MNCR)	805.2	109	74,267.2	1,551,190.5
New York, NY	MTA Long Island Rail Road (MTA LIRR)	701.1	124	95,519.0	1,925,735.6
New York, NY	New Jersey Transit Corporation (NJ TRANSIT)	1,016.4	167	72,613.8	1,982,312.5
Philadelphia, PA	Pennsylvania (PENNDOT)	144.4	12	249.9	16,441.0
Philadelphia, PA	Southeastern Pennsylvania Trans. Authority (SEPTA)	609.5	156	31,680.0	456,445.5
Portland, ME	Northern New England Passenger Rail Auth. (NNEPRA)	114.0	10	250.5	20,344.2
San Diego, CA	North County Transit District (NCTD)	96.0	8	1,432.5	40,139.5
San Francisco, CA	Peninsula Corridor Joint Powers Board (PCJPB)	136.7	33	8,120.9	202,708.4
Seattle, WA	Central Puget Sound Regional Transit Authority (ST)	146.0	9	1,268.0	31,876.8
Stockton, CA	Altamont Commuter Express (ACE)	90.0	10	640.6	33,279.3
Washington, D.C.	Virginia Railway Express (VRE)	190.0	18	3,654.3	109,225.8
	Total	**7,947.5**	**1,174**	**423,061.2**	**9,472,916.1**

Figure 4 - 9 Commuter Rail Agencies and System Data (2005)

Figure 4-10 provides an annual summary of revenue vehicles (railcars), capital expenditures, fare revenue (farebox), operating expenses, and the percentage of fare revenues to expenses. In the last two columns, which compare the fares to expenses, the percent of expenses covered by riders is found. It can be seen that ridership does not typically cover the full expenses of commuter rail, which means that a state or local municipality has to provide funds to handle the shortfall. It can be concluded that Virginia Railway Express (VRE) is exceeding the national average in the share of expenses covered by its collected fares.

Service must be operated on a regular basis by or under contract with a transit operator for the purpose of transporting passengers within urbanized areas, or between urbanized areas and outlying areas. Such rail service, using either locomotive hauled or self propelled railroad passenger cars, is generally characterized by multi-trip tickets, specific station to station fares, railroad employment practices and usually only one or two stations in the central business district.

Some commuter rail operators own all or part of the railroad right-of-way (sometimes purchased from freight railroads) on which they operate. Other commuter rail systems operate primarily or exclusively over tracks owned by freight railroads (such as VRE in Northern Virginia). Moreover, to avoid the time and expense of new rights-of-way acquisition, the vast majority of proposed new commuter operations and existing commuter passenger operators that want to extend their operations typically advocate using existing freight railroad rights-of-way.

Primary City	Transit Agency	Revenue Vehicles	Capital Expense ($1,000)	Fare Revenue ($1,000)	Operating Expenses ($1,000)	Fare % of Operating Expenses	Fare % of Operating + Capital Expenses
Anchorage, AK	Alaska Railroad Corporation (ARRC)	102	8,094.4	1,231.8	2,501.4	49.24%	11.63%
Baltimore, MD	Maryland Transit Administration (MTA)	153	22,062.6	28,949.5	68,203.4	42.45%	32.07%
Boston, MA	Massachusetts Bay Trans. Authority (MBTA)	460	105,169.4	98,790.0	219,670.1	44.97%	30.41%
Chicago, IL	Northeast IL Regional Commuter RR Corp. (METRA)	1,172	343,240.1	198,493.9	477,855.0	41.54%	24.17%
Chicago, IL	Northern Indiana Commuter Trans. District (NICTD)	68	29,656.6	15,739.8	31,343.1	50.22%	25.80%
Dallas, TX	Dallas Area Rapid Transit (DART)	36	5,009.3	1,036.1	18,990.1	5.46%	4.32%
Dallas, TX	Fort Worth Transportation Authority (The T)	17	3,075.2	802.3	8,220.2	9.76%	7.10%
Hartford, CT	Connecticut Department of Transportation (CDOT)	38	0.0	1,234.1	7,679.1	16.07%	16.07%
Los Angeles, CA	Southern California Regional Rail Authority (Metrolink)	188	34,945.9	47,807.9	110,729.2	43.18%	32.82%
Miami, FL	South Florida Regional Trans. Authority (TRI-Rail)	30	110,301.8	6,089.4	31,002.8	19.64%	4.31%
New York, NY	Metro-North Commuter Railroad Co. (MTA-MNCR)	1,078	455,310.6	437,673.6	711,795.9	61.49%	37.50%
New York, NY	MTA Long Island Rail Road (MTA LIRR)	1,158	710,829.0	442,300.3	944,483.7	46.83%	26.72%
New York, NY	New Jersey Transit Corporation (NJ TRANSIT)	1,141	282,628.2	297,650.7	660,791.3	45.04%	31.55%
Philadelphia, PA	Pennsylvania (PENNDOT)	12	14,037.9	2,733.9	9,083.6	30.10%	11.82%
Philadelphia, PA	Southeastern Pennsylvania Trans. Authority (SEPTA)	357	76,673.2	90,914.7	193,977.7	46.87%	33.59%
Portland, ME	Northern New England Passenger Rail Auth. (NNEPRA)	18	2,080.0	3,365.6	8,301.0	40.54%	32.42%
San Diego, CA	North County Transit District (NCTD)	35	4,393.6	5,774.1	15,441.9	37.39%	29.11%
San Francisco, CA	Peninsula Corridor Joint Powers Board (PCJPB)	153	65,393.0	21,968.3	67,276.9	32.65%	16.56%
Seattle, WA	Central Puget Sound Regional Transit Authority (ST)	69	70,727.3	3,052.9	20,983.1	14.55%	3.33%
Stockton, CA	Altamont Commuter Express (ACE)	21	4,558.8	2,992.8	10,992.0	27.23%	19.25%
Washington, D.C.	Virginia Railway Express (VRE)	86	11,344.6	19,439.5	40,071.5	48.51%	37.81%
	Total	**6,392**	**2,359,531.5**	**1,728,041.2**	**3,659,393.0**	**47.22%**	**28.71%**

Figure 4 - 10 Commuter Rail Agencies Revenue Data (2005)

5. THE VIRGINIA RAIL SYSTEM

5.1. FRA Requirements

This Chapter of the VSRP presents information related to Virginia's entire rail system as required by 49 CFR § 266.15 (c)(2) and 49 CFR § 266.15 (c)(6). The data required by the section is presented differently than stated in the requirement, to conform to the methodology used in the VTrans2035 documents. Virginia's VTrans2035 methodology uses corridors connecting portions of Virginia and the surrounding states to define needs and programs. For the rail system, these corridors mirror the Class I high density freight lines.

The requirement of 49 CFR § 266.15 (c)(2) is fulfilled by the Official State Railroad Map that is presented at a reduced scale in Figure 5-2.

The data required by 49 CFR § 266.15 (c)(2)(i) is presented in figures 5-5 Class I Railroads and 5-10 Shortline Railroads.

The data required by 49 CFR § 266.15 (c)(2)(ii) is presented in figures 5-8 and 5-9 that depict the tonnage within Virginia and the tonnage passing through Virginia.

The data required by 49 CFR § 266.15 (c)(2)(iii) is presented in figure 5-13 Passenger routes in Virginia.

The final requirement of 49 CFR § 266.15 (c)(2) is fulfilled by the narratives presented throughout this chapter discussion the transportation corridor, the passenger service, the Class 1 freight activity, and the Shortline Railroad profiles.

49 CFR § 266.15 (c)(6) requires, to the extent that the data is available to Virginia, detailed information about specific lines. Virginia's grant methodology has been developed to minimize the proprietary commercial data collected from the railroads, and replaced it with performance reporting criteria and specific performance commitments as a part of each grant provided. The grant monies are recoverable to Virginia if the performance is not met. This methodology requires the railroad to report only funding specific information, while shielding the overall commercial information such as revenues and costs. Therefore, some items requested by this section are not available to Virginia. 49 CFR § 266.15 (c)(6)(iv) requests data for the preceding three years. Under the Virginia grant program agreements, the performance metrics attached to each grant look forward as a guarantee of future performance and do not look back historically.

The data required by 49 CFR § 266.15 (c)(6)(i) is aggregated and presented in Figure 5-8 Freight Railroad Traffic in Virginia.

The data required by 49 CFR § 266.15 (c)(6)(iii) is presented in section 5.5 for each shortline and in Appendix C Statewide Shortline Railroad Improvement Program Technical Memorandum.

Summary of the Virginia Rail System
In 2007, Virginia celebrated its 400th anniversary. Founded as a trading colony, freight and passenger movements remain a critical part of the Commonwealth's economy. To accommodate the movement of goods and people, Virginia hosts one of the nation's leading port facility complexes in Hampton Roads; two national freight railroads (NS and CSX) and 9 shortline railroads; four major international airports that also handle cargo; and some of the nation's most heavily used truck corridors, I-95 and I-81. A summary of railroad owners, classification and rail mileage in Virginia is shown in Figure 5-1

Railroad Classification / Name	Miles Operated in Virginia	
	Excluding Trackage Rights	Including Trackage Rights
Class I RR		
Norfolk Southern	2,020	2,100
CSX	850	1,051
Shortline RR (Class III)		
Bay Coast Railway	68	68
Buckingham Branch	273	273
Chesapeake and Albemarle	29	29
Chesapeake Western	43	43
Commonwealth Railway	17	17
Norfolk & Portsmouth Beltline	36	63
North Carolina and Virginia	4	4
Shenandoah Valley	25	25
Winchester & Western	17	17
Total	**3,380**	**3,688**

Figure 5-1. Rail Mileage in Virginia

Virginia's rail system dates from the 1800's and has evolved continuously since then. Today, it consists of more than 3,200 miles of private track (excluding trackage rights), most of which are operated by two Class I railroads – the Norfolk Southern Corporation (2,020 miles) and CSX (850 miles). Major lines run north-south and east-west, and important rail lines converge at key nodes: Norfolk, Richmond, Lynchburg, Roanoke, and Alexandria. The Commonwealth of Virginia's rail system is operated by 11 freight railroads and two passenger railroads. Of the 11 freight railroads, two are Class I national railroads (line-haul freight railroads exceeding $319.3 million in annual operating revenue). The remaining 9 freight railroads are Class III (shortline) railroads (line-haul carriers with annual revenues less than $25 million), two of which are primarily switching railroads serving marine terminals and industrial facilities. There are no Class II Railroads in Virginia. Two passenger systems - Amtrak and the VRE – utilize this private freight railroad system.

Figure 5-2 is an excerpt from the Official State Rail Map indicating the various freight and passenger lines in the state. Since this map was published, the Virginia Southern Railroad has been acquired by the Buckingham Branch Railroad. A detailed copy of the entire map with enlargements of major urban areas, track ownership identification, and passenger service routes can be downloaded from DRPT's website (www.drpt.virginia.gov). Figure 5-3 depicts the existing rail system in terms of the number of tracks, as well as major siding and rail yard facilities. As can be seen in Figure 5-3, much of the rail system is single track. Single track railroads are natural bottlenecks, and operate similar to a one-lane highway that must accommodate two-way traffic. Just as cars would need to stop and take turns proceeding on a stretch of single-lane highway, trains must stop and take turns at siding locations to allow other trains to pass. This type of operation requires careful dispatching procedures for safety reasons, and can cause significant capacity constraints and on-time performance delays.

Rail freight data discussed in this report was obtained primarily from the *Virginia Statewide Multimodal Freight Study, Phase I, Final Report, April 2008* prepared for the VDOT Multimodal Transportation Planning Office.

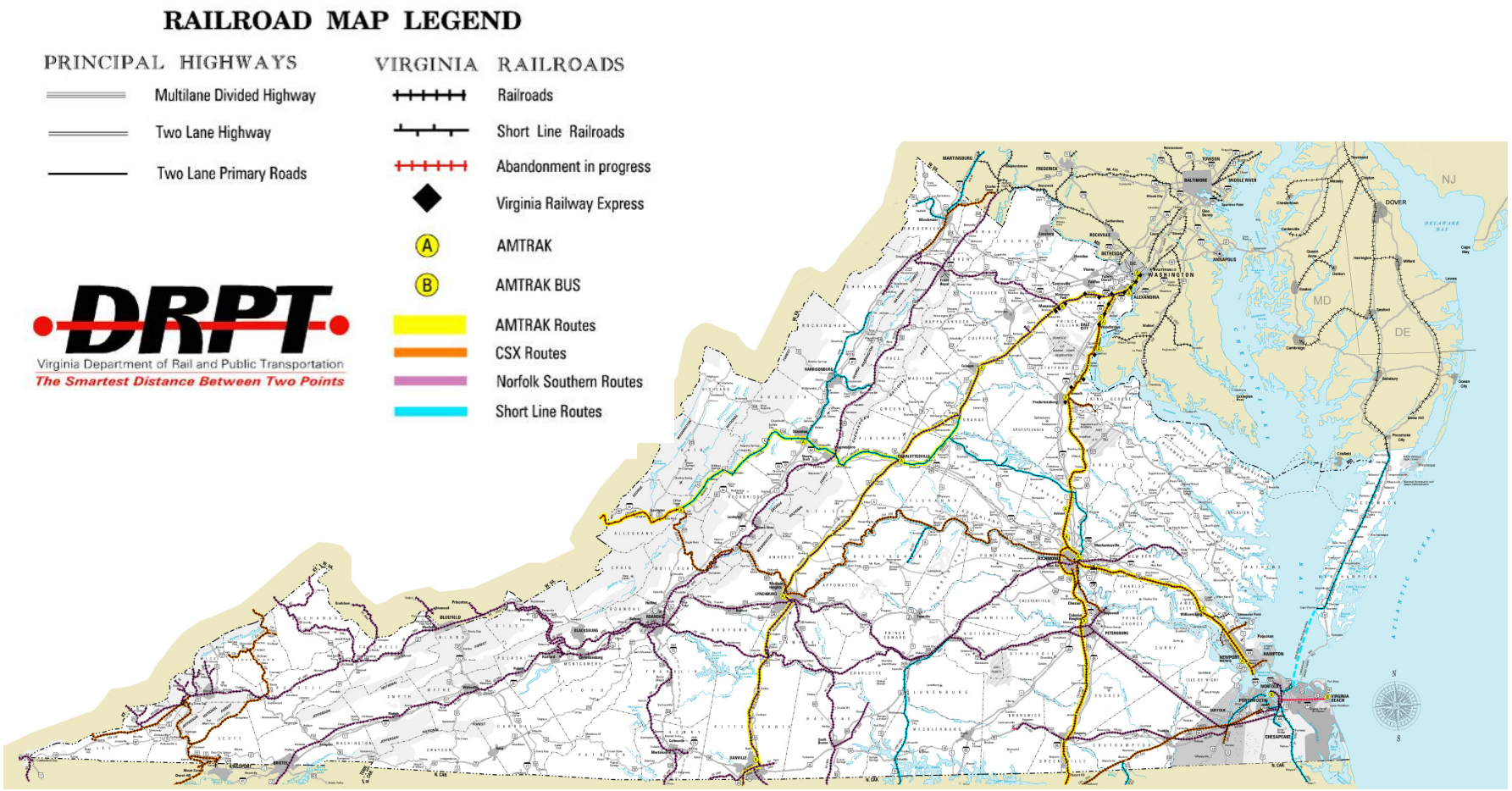


Figure 5-2. Official State Rail Map (2007)

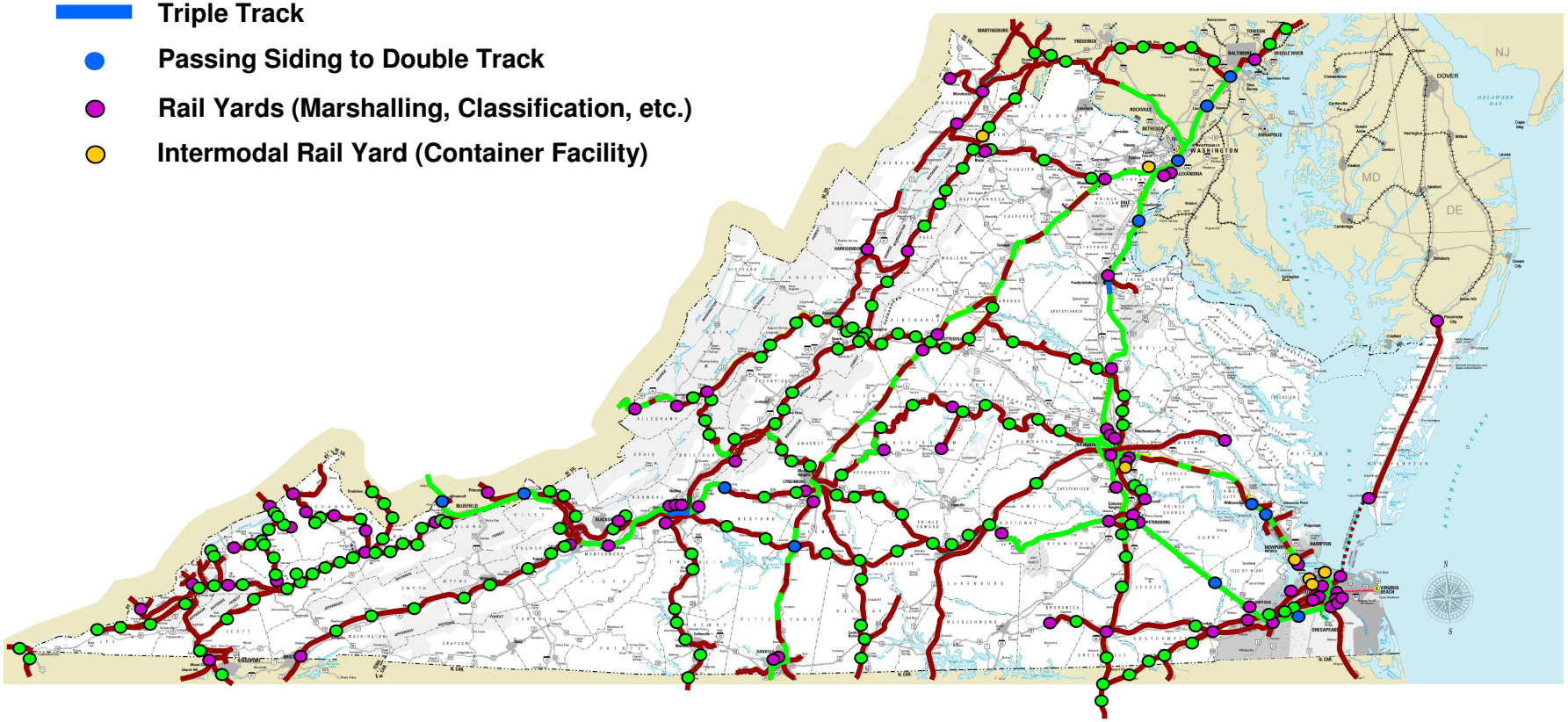


Figure 5-3. Rail Track System

5.2. Rail Services and Railcar Types

Virginia's rail network is almost entirely privately owned, as are the terminals and "rolling stock" (locomotives and railcars) moving over the system. Virginia's rail freight traffic as illustrated in (Figure 5-4) can be generally classified as:

- Unit Trains (long trains of 7,500 to 10,000 feet consisting of a single commodity, like coal). On a tonnage basis, coal accounts for more than two-thirds of all Virginia rail freight traffic. Most of this is moving east-west, between the coalfields of Appalachia and Hampton Roads, or between the coalfields and Tennessee/North Carolina. About one-half of the coal moving over Virginia's rail system is through traffic.
- General Merchandise Trains (carload trains of varying lengths, consisting of different commodities and car types, such as tank cars, hopper cars, flatcars, or traditional boxcars). Carload traffic (agricultural products, chemicals, paper, lumber, food, etc.) represents more than 25 percent of Virginia tonnage, and moves primarily in the north-south direction, paralleling I-95 and I-81. Like coal, about half of this is through traffic.
- Intermodal/Auto Trains (long trains of 6,000 to 13,000 feet consisting of specialized railcars designed to carry intermodal shipping containers or automobiles). Intermodal containers represent around 19 percent of Virginia's rail freight traffic on a per-unit basis, but only three percent on a per-ton basis, because containers tend to carry lower weight, higher value commodities. Intermodal traffic moves both north-south and east-west over Virginia's rail network. Around one-half is moving between Virginia origins and destinations (Virginia Port Authority facilities and other intermodal terminals) and Illinois, where it may interchange with the western Class I carriers. The remainder consists mostly of through traffic in the Florida-New Jersey and Illinois-North Carolina corridors.

Figure 5-4. Examples of Unit Coal Train, Merchandise, and Double-Stack Intermodal Rail Services
(Photos courtesy of Jeff Hawkins)

5.3. Class I Railroads (NS and CSX)

Through various agreements, the Class I railroads operate throughout the U.S. The two main Class I railroads operating in Virginia are Norfolk Southern (NS) and CSX Transportation. Norfolk Southern's corporate headquarters is located in Norfolk. Figure 5-5 depicts the NS and CSX freight lines in Virginia. Interconnectivity of the overall East Coast rail system is shown in Figure 4-3, with system maps for NS and CSX shown in Figures 5-6 and 5-7 respectively. The vast majority of Virginia's freight rail track infrastructure is in the possession of the two Class I railroads, NS (approximately 60 percent) and CSX (approximately 25 percent) – the remaining 15 percent consists of shortline railroads.

Virginia's freight rail network is comprised of tracks, bridges, sidings, and terminals. The Class I network includes approximately 3,380 miles of privately owned and operated track. Both freight railroads offer major east-west connections between Hampton Roads and West Virginia/Kentucky/Tennessee. The majority of Virginia's freight rail network within the national network runs roughly north-south, while the major lines for Virginia tonnage run east-west. NS and CSX are rail lines eligible for assistance under CFR Sec. 266.7.

5.3.1. Norfolk Southern

Norfolk Southern's north-south mainlines in Virginia are known as the Crescent Corridor. One segment runs from Alexandria to Danville, and then south to Atlanta via Greensboro and Charlotte, North Carolina, and Spartanburg, South Carolina (the Piedmont line). The second mainline segment parallels I-81 between Front Royal and Bristol, Virginia (the Shenandoah line), and serves the Commonwealth's Virginia Inland Port (VIP) near Front Royal. The principal train types on the Crescent Corridor are intermodal, general merchandise, and auto trains.

A heavily used line, known as the Heartland Corridor, runs from the Ports of Hampton Roads to the West Virginia border in Southwest Virginia, and then to Midwest markets in Ohio, Illinois and other states. The Heartland Corridor is the primary intermodal train corridor connecting the Ports of Hampton Roads to national markets, and is currently being improved to handle double-stack intermodal trains. The line with the heaviest use is the Coal Corridor which carries unit trains of coal from the Appalachian coalfields to the NS Coal Marine Terminal at Lamberts Point in Norfolk. The Coal Corridor is a dual line section consisting of the former Virginia Line and the Norfolk and Western Line from the coalfields to Abilene, Virginia, where both lines merge to continue eastward to Norfolk.

5.3.2. CSX Transportation

CSX's north-south mainline in Virginia is known as the National Gateway Corridor and runs from Alexandria to Richmond, and then further south via Petersburg and Emporia, generally paralleling I-95. At Weldon, just below the Virginia – North Carolina border, the mainline has an eastward extension to the Ports of Hampton Roads. The National Gateway Corridor is the primary intermodal train corridor connecting the Ports of Hampton Roads to national markets, and is currently being improved to handle double-stack intermodal trains. The CSX line with the heaviest use is the Coal Corridor which carries unit trains of coal from the Appalachian coalfields through Richmond and down the Peninsula to CSX's Coal Marine Terminal in Newport News.

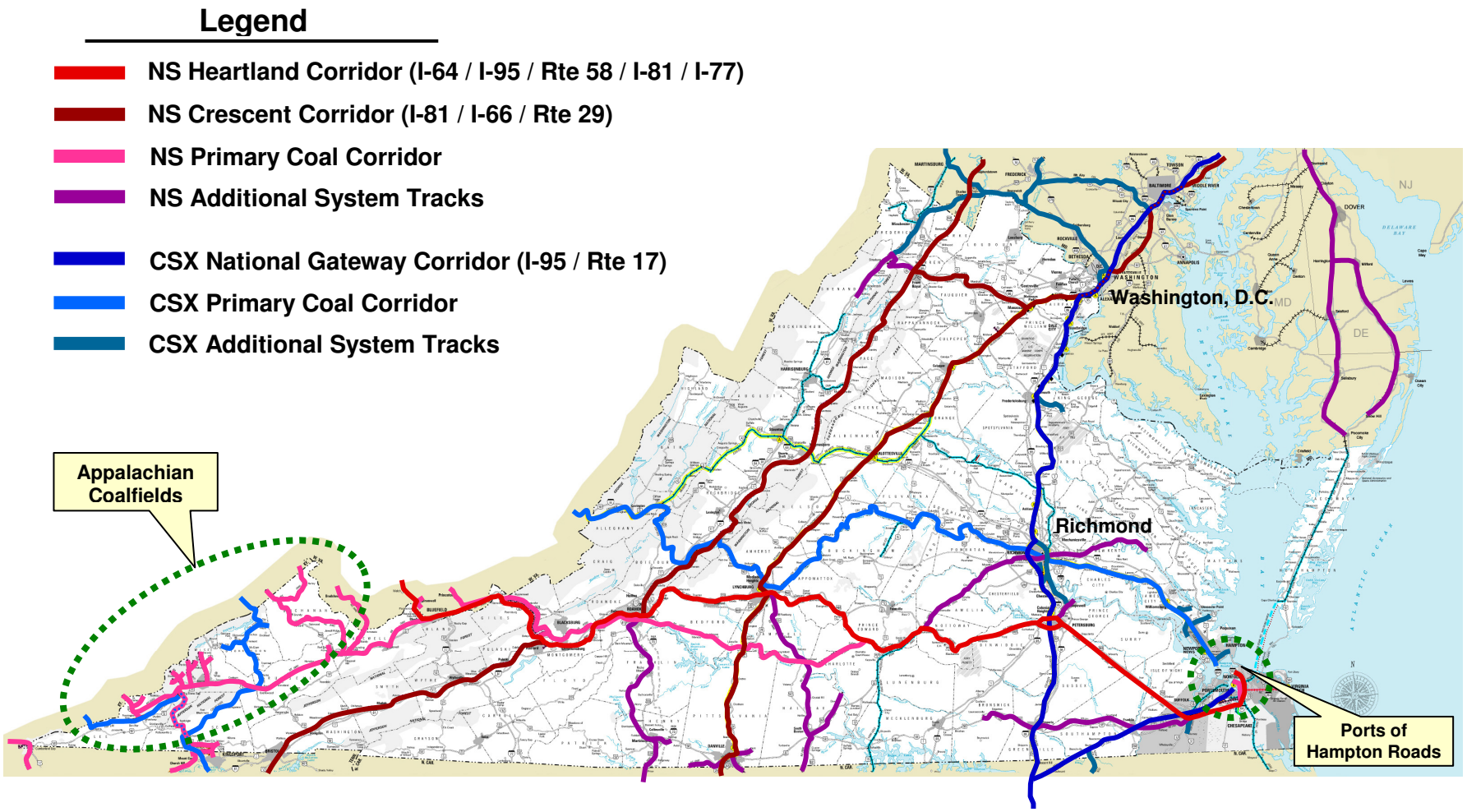


Figure 5-5. Class I Railroads in Virginia (NS and CSX)
(Non-highlighted rail lines represent shortline railroads)

Figure 5-6. Norfolk Southern System Map
(Source: NS)

Figure 5-7. CSX Transportation System Map
(Source: CSX)

5.4. Virginia Rail Freight Tonnage

According to the most recent data from the Association of American Railroads (2006) there were a total of 2,372,056 carloads of freight carried in Virginia with a total tonnage of 174,934,786 tons carried. The largest commodity carried by tonnage was coal as depicted in Figure 5-8. According to the most recent data available from the USDOT (2004), Virginia's multimodal transportation system handled around 915 million tons of freight worth more than $2.1 trillion. This includes freight carried by trucking, rail, air, domestic water, and international water. It also includes freight moving inbound to, outbound from, within, and through the Commonwealth. On the basis of tonnage, trucking handled approximately 74 percent, followed by rail at 20 percent (183 million tons), water at 6 percent, and air at less than 1 percent. On the basis of value, trucking handled approximately 94 percent, rail handled approximately 4 percent, and air and water handled approximately 2 percent.

The *Virginia Statewide Multimodal Freight Study, Phase I*, utilized a national freight database known as TRANSEARCH, which included a set of rail network flow maps, based on model assignments and freight data from 2004. Discussions with Virginia's railroads indicate that actual routings are somewhat different; but adjustment of the TRANSEARCH routings was not possible in the study. For present purposes, however, review of TRANSEARCH rail flow maps supports some interesting observations. Figure 5-9 below suggests that for existing Virginia-based tonnage (moving inbound, outbound, or within the Commonwealth), the highest volume flows are east-west, and focused on the Ports of Hampton Roads; coal represents a large share of current rail tonnage in this corridor, as well as intermodal movements on the Heartland Corridor. The north-south movement of Virginia rail traffic is a lesser share of rail business.

Rail tonnage that has both an origin and a destination outside of Virginia, but is passing through Virginia along the way, shows – like trucking – a very different distribution. TRANSEARCH data shown in Figure 5-10 suggests that pass-through traffic is primarily utilizing the north-south network. Again, it should be noted that the route assignments may be adjusted by future analysis. North-south rail movements should increase significantly as major rail choke points on the I-95 (CSX National Gateway) and I-81 (NS Crescent Corridor) are removed and system improvements are completed in Virginia and adjacent states.

Tons Originating in Virginia (2006)			**Tons Terminating in Virginia (2006)**		
Type	**Tons**	**%**		**Tons**	**%**
Coal	31,218,728	65	Coal	36,459,246	58
Nonmetallic Minerals	8,239,788	17	Nonmetallic Minerals	7,452,189	12
Glass & Stone Products	1,653,068	3	Chemicals	3,043,512	5
Lumber & Wood Products	1,009,060	2	Farm Products	2,874,655	5
Containers & All Other Mixed Freight	6,067,364	13	Waste & Scrap	2,768,468	4
			Containers & All Other Mixed Freight	9,956,437	16
Total	**48,188,088**	100	**Total**	**62,554,507**	100

Figure 5-8. Freight Railroad Traffic in Virginia
(Source: Association of American Railroads)

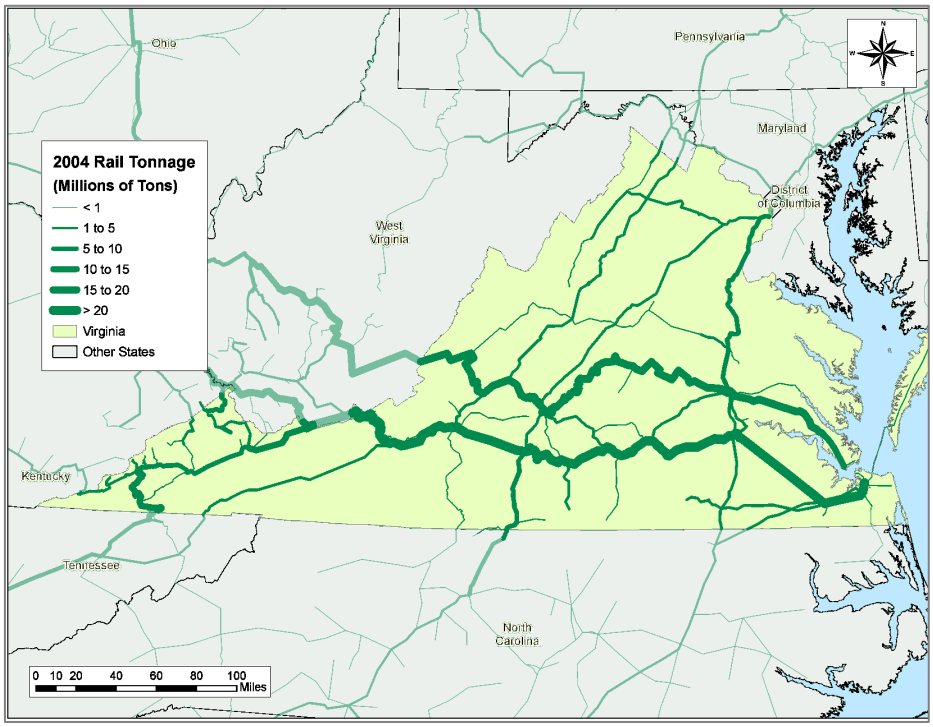


Figure 5-9. Virginia Rail Tonnage - Inbound, Outbound and Internal (2004)

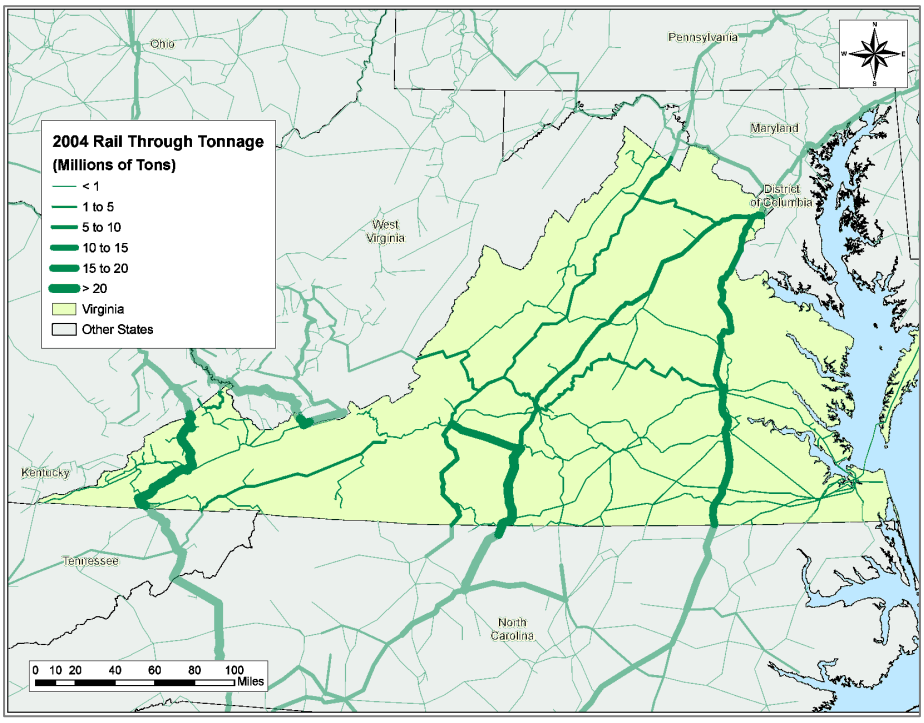


Figure 5-10. Rail Tonnage Passing Through Virginia (2004)

5.5. Shortline Railroads

Shortlines have become a critical component of the rail industry and produce benefits to shippers and local communities trying to support economic development to industries. Shortlines act as the originating and terminating railroads for approximately one-third of all rail shipments. It is critical that shortline tracks adequately handle 286,000 pound capacity railcars and container shipments in order to interface with the Class I railroads.

In Virginia the shortlines comprise of nine railroads with 675 route miles, of which 510 miles occur within the state (the remaining miles extend into adjacent states). Figure 5-11 provides the locations of the shortline system in the Commonwealth, and Figure 5-12 provides a list of the number of carloads carried in 2007 by the shortline operators. Shortlines often serve as the first or last link in the business to business delivery by providing the intensive switching operations that are not profitable for the Class I railroads.

Many of the shortlines were built over 100 years ago using the then standard lighter weight rail sections and cinders or limited ballast, and in many cases have experienced track settlement and, consequently, operational problems due to postponement of regular maintenance (i.e., deferred maintenance). Many of the lines were previously owned by some of the major Class I railroads who divested them as a result of low traffic volumes or declining revenues.

Maintenance of a railroad is a costly continual operation and the smaller Class III shortline railroads are constrained by the financial challenges of balancing operations and track maintenance. The combination of deferred maintenance and the trend towards the use of newer and heavier 286,000 pound railcars have created a need to invest in shortline infrastructure.

Over the past decade, the industry has generally moved from railcars with a weight and capacity equaling 256,000 pound cars, to 263,000 pound cars, to the current standard of 286,000 pound railcars for transporting heavy bulk materials, like coal, grain and lumber. Portions of the Class I system have even been designed for 315,000 pound railcars. Studies have shown that the 286,000 pound railcars can operate on rail section weighing as little as 90 pounds per yard if all the other track components are in good shape with tight rail joints. Given the typically poor soil conditions for Virginia, it is more cost effective to install a heavier weight rail section to better distribute the loads to the soil, and to protect the investment to the rail infrastructure.

All of Virginia's shortlines are classified by the Federal Railroad Administration (FRA) as Class III railroads (line-haul carriers with annual revenues less than $25 million).

The Deepwater Terminal Railroad, operated by the City of Richmond, has no official FRA designation but provides freight movements between the Port of Richmond and the Class I carriers. A brief description of the existing shortline railroads is presented after the figures.

Existing FRA Class III Shortline RR System

Bay Coast Railway (BCR)
Buckingham Branch (BB)
Chesapeake and Albemarle (CA)
Chesapeake and Western (CHW)
Commonwealth Railway (CWRY)
Norfolk and Portsmouth Beltline (NPBL)
North Carolina and Virginia (NCVA)
Shenandoah Valley (SV)
Winchester and Western (WW)

Unclassified by the FRA
Deepwater Terminal Railroad (DWT)

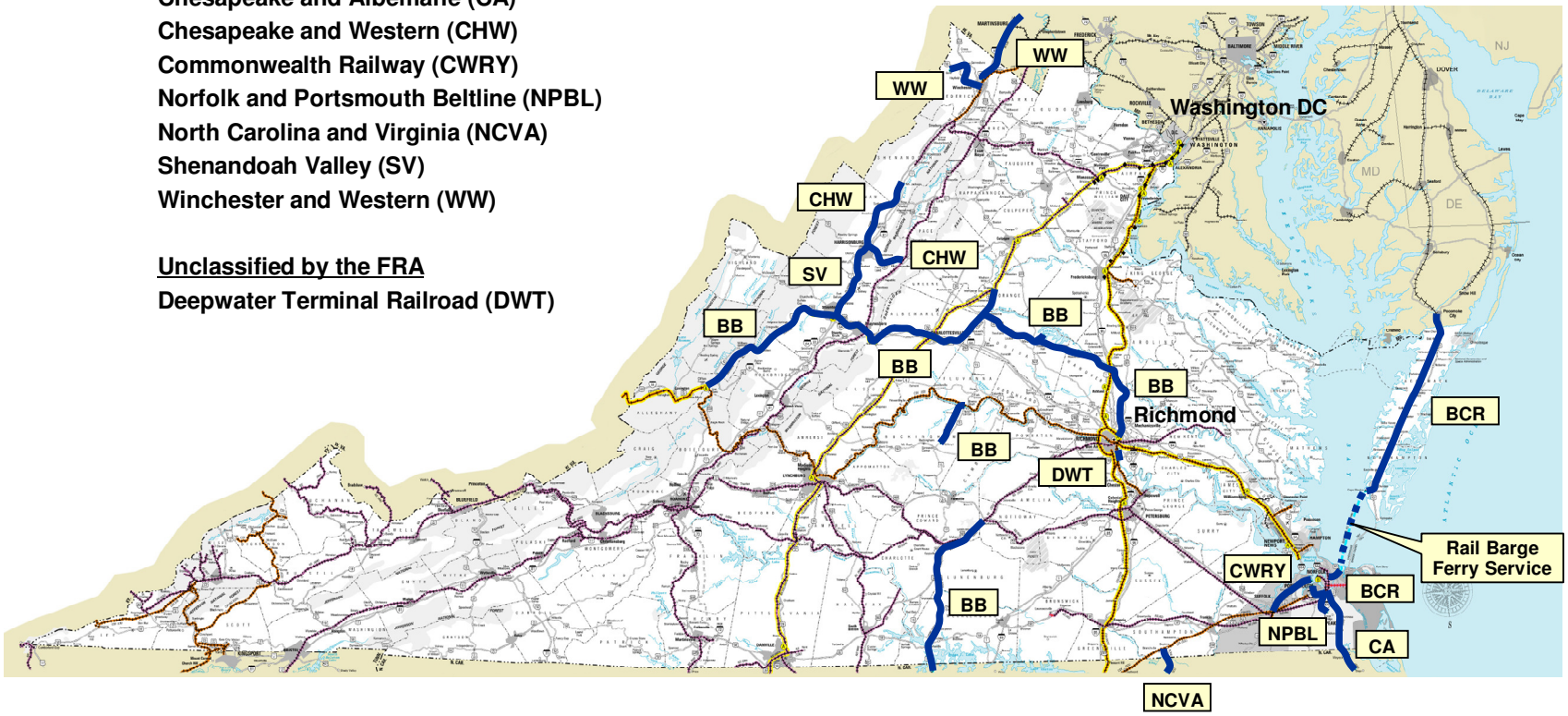


Figure 5-11. Shortline Railroad System

Commodity	Bay Coast Railroad	Buckingham Branch Railroad	Chesapeake & Albemarle Railroad	Chesapeake Western Railroad	Commonwealth Railway, Inc. *	Norfolk & Portsmouth Beltline	North Carolina & Virginia Railroad	Shenandoah Valley Railroad	Winchester & Western Railroad Co.	Deepwater Terminal Railroad **
Base Metals							X		X	X
Milled Grain Products	X	X	X	X		X	X	X		
Gravel and Crushed Stone	X		X						X	X
Plastic and Rubber		X					X		X	X
Wood Products	X	X	X				X	X		X
Waste and Scrap							X	X		X
Misc. Manufactured Products			X							X
Nonmetallic Minerals		X				X				
Paper	X	X					X		X	X
Basic Chemicals	X				X		X			X
Transportation Equipment	X	X								X
Metallic Ore & Concentrates		X								
Machinery							X			X
argo – Not Otherwise pecified	X	X	X		X	X	X	X	X	X
TOTALS	1,909	546,766	6,329	N/A	839	25,841	23,974	1,305	6,277	393

* Does not include containerized cargo from the new APM Terminal in Portsmouth which opened in late 2007 and will generate many new carloads in the future (as will the future VPA Craney Island Marine Terminal to open in 2017).

** DWT is not classified by FRA.

Figure 5-12. Shortline Railroads – Summary of Annual Carloads (2007)

5.5.1. Bay Coast Railway (BCR)

BCR operates the former Eastern Shore Railroad line. Bay Coast Railway operations began on October 1, 1981 over the former Virginia and Maryland line from Pocomoke City, Maryland, to Norfolk, Virginia. This north-south route on the Delmarva Peninsula was originally established in 1884 and is still the most direct route between the Northeast and Norfolk, Virginia. The rail line is unique in its ability to handle special over-height rail shipments – shipments that cannot be accommodated on the NS and CSX mainland corridors because of tunnel and bridge restrictions (particularly in urban city areas). The Bay Coast Railway consists of 68 miles of FRA Class III mainline and a 26 mile car float (ferry) operation from Cape Charles to Little Creek, Virginia. The Bay Coast Railway uses a rail ferry service to span the 26 mile water route across the Chesapeake Bay between Cape Charles and Norfolk, Virginia. A tug boat is used to move a barge (car float) having a 25 railcar capacity. This float operation is one of only two remaining in the Eastern United States and is the longest water route in the country. This car operation has been in continuous service since April 1885.

The Bay Coast Railway interchanges with the Norfolk Southern Railway and the Norfolk and Portsmouth Belt Line Railroad in Norfolk, and the Norfolk Southern Railway in Pocomoke City, Maryland with rail yards in Cape Charles and Little Creek, Virginia.

5.5.2. Buckingham Branch Railroad (BB)

BB is a family owned shortline railroad operating 273 miles of historic and strategic track in Central Virginia. The Bryant family owns and operates a 17.3 mile long line between Dillwyn and Bremo, Virginia and is also known as the Buckingham Division. The Buckingham Branch Railroad also leases and operates a 200 mile long line of railroad from Richmond to Clifton Forge, Virginia. This line is known as the Richmond Alleghany Division, and is further divided into the North Mountain, Washington & Piedmont Subdivisions. The company's headquarters is in Dillwyn, Virginia in the former Chesapeake and Ohio Railroad (C&O) station, a historic landmark in the community.

The Buckingham Branch Railroad is primarily a freight railroad and receives freight cars from CSX Transportation at Strathmore on the Buckingham Division and at Doswell and Clifton Forge. It also receives railcars from Norfolk Southern at Charlottesville, Orange and Waynesboro on the Richmond Alleghany Division. The Shenandoah Valley Railroad also interchanges freight cars with the BB at Staunton.

Outbound freight on the Buckingham Division consists mainly of wood chips, lumber, crushed slate and Kyanite ore. Inbound freight includes fertilizer and road salt. The Richmond Alleghany Division carries both inbound and outbound products also including; plastic pellets for film production, lumber & gypsum board for local building suppliers, coal for a university steam plant and newsprint for Richmond Newspapers.

CSX uses the Richmond Alleghany Division to move unit trains of empty coal cars between Richmond and Clifton Forge. Amtrak operates the Cardinal passenger train route between Orange and Clifton Forge three days a week, providing local station service at Charlottesville, Staunton, and Clifton Forge. CSX also originates unit rock trains that operate on the line between Verdon and Richmond. BB is eligible for assistance under CFR Sec 266.7

The Virginia Southern Division of the BB is a 75 mile line that runs from Burkeville, Virginia to Oxford, North Carolina. The portion of the line between Clarksville, Virginia and Oxford, North Carolina has not been in use for more than a decade and is overgrown with vegetation.

The Virginia Southern Division is located in Keysville, Virginia and interchanges with Norfolk Southern Railway at Burkeville, Virginia. Current customers include; W.D. Barton Pulp Co., Burlington Ind., St. Laurent Forest Products, Mecklenburg Co-Gen, Russel Stover and Spaulding Lumber Co. The Virginia Southern is operated by the North Carolina and Virginia Railroad and is owned by RailAmerica.

5.5.3. Chesapeake and Albemarle Railroad (CA)

CA is a short-line railroad operated by the North Carolina and Virginia Railroad and is owned by RailAmerica. The Chesapeake and Albemarle Railroad started operations on April 2, 1990. They operate on 82 miles of track from Chesapeake, Virginia to Edenton, North Carolina. Chesapeake and Albemarle Railroad is headquartered in Ahoskie, North Carolina and interchanges with both Norfolk Southern Railway at Chesapeake, Virginia and CSX Transportation at Portsmouth, Virginia (via Norfolk & Portsmouth Belt Line). The railroad was part of the now defunct Norfolk Southern Railroad, which continued south crossing the Albemarle Sound and onto Mackeys Ferry and Plymouth.

Current customers include; Albemarle Builders, Albemarle Distribution, Royster Clark, Central Grain, Universal Forest Products, Currituck Grain, Hobbs Implement, Lebanon Agricorp, Lebanon Agricorp, C.A. Perry & Sons, Commercial Ready-Mix, Coastal Ready-Mix, Roberts Bros., Southern States, United Piece & Die, IMC, Vulcan Materials and F.P. Wood & Son.

5.5.4. Chesapeake Western Railroad (CHW)

CHW was an intrastate railroad in west-central Virginia. It extended from Elkton on the South Fork of the Shenandoah River in Rockingham County to Stokesville in Augusta County at the foot of the Allegheny Mountains. At Elkton, it interchanged with the Norfolk and Western Railway. At Harrisonburg it interchanged with the Southern Railway.

Construction began in 1885 in Harrisonburg by the Chesapeake and Western Railroad, and proceeded both east and west. To the west, Bridgewater was the original terminus, but the line was extended to Stokesville by 1901 by the newly reorganized Chesapeake Western Railway. In 1933 the line was cut back to Bridgewater, and later to Dayton. To the east the line reached Elkton by 1896, where the line's main yard and shops were constructed.

In 1938 the line was bought by the line's general manager with the help of Norfolk and Western, which assumed direct control in 1954. In 1943, the Baltimore and Ohio's Valley Road of the Virginia line, which ran between Harrisonburg and Lexington was purchased, though the portion from Staunton to Lexington was promptly taken out of service. Later, a portion of the same line to the north of Harrisonburg as far as Mt. Jackson was added.

The line continues to operate today as the Chesapeake Western Branch of Norfolk Southern, a FRA Class III short-line. A portion of the line south of Harrisonburg to Pleasant Valley is now owned and operated by the Shenandoah Valley Railroad.

5.5.5. Commonwealth Railway, Inc. (CWRY)

CWRY is a short-line railroad operating 16.5 miles of track of the former Norfolk, Franklin and Danville Railway line from Suffolk, to Portsmouth, Virginia. Its local office is in the Wilroy area of Suffolk, Virginia. Commonwealth Railway is owned by Rail Link Inc. headquartered in Jacksonville, Florida. In May 2008, CWRY purchased the remaining interest in the line from Norfolk Southern with funding assistance from DRPT's Rail Enhancement Program.

The Commonwealth Railway is the primary rail carrier to the new APM Terminal in Portsmouth providing double-stack rail service to the new container terminal and the future Craney Island Marine Terminal proposed by the Virginia Port Authority. Existing industries, such as the BASF Chemical plant in the West Norfolk area of Portsmouth are also served by CWRY.

CWRY provides dual Class I railroad access to the marine terminals and industries in Portsmouth, with rail connections to both Norfolk Southern and CSX near Suffolk. CWRY also operates a new rail marshalling yard near Suffolk to assemble intermodal train segments from the APM Terminal into a full unit trains for transit to the hinterlands.

5.5.6. Norfolk & Portsmouth Beltline (NPBL)

NPBL is a shortline railroad that has been operating in Norfolk, Portsmouth and Chesapeake since 1898. The NPBL is owned 57 percent by Norfolk Southern Railway and 43 percent by CSX Transportation. The Belt Line interchanges with Chesapeake and Albemarle Railroad, CSX Transportation, Bay Coast Railroad (formerly the Eastern Shore Railroad) and Norfolk Southern. The Belt Line is a terminal switching company that owns 36 miles of track, (plus 27 miles of trackage rights) and links commerce around the deepwater port from Sewells Point to Portsmouth Marine Terminal and including the Southern Branch of the Elizabeth River. All locomotives are leased from Norfolk Southern.

5.5.7. North Carolina and Virginia Railroad (NCVA)

NCVA is a short-line railroad that started in 1987 on the former Seaboard Coast Line Railroad from Boykins, Virginia to Tunis in Cofield, North Carolina. The North Carolina and Virginia Railroad is headquartered in Ahoskie, North Carolina and interchange with CSX Transportation in Boykins, Virginia.

Current customers include; Ahoskie Fertilizer, Colerain Peanut, Southern States, Georgia-Pacific, Golden Peanut Co., Kerr Plastic, Perdue Farms, Resinall Corp., Rich Square Cotton Gin, Royster Clark and Severn Peanut. The North Carolina and Virginia is owned by RailAmerica.

5.5.8. Shenandoah Valley Railroad (SV)

SV is a privately owned shortline railroad extending northward from Staunton in Augusta County through Rockingham County to Pleasant Valley. The line was originally built by the Baltimore and Ohio Railroad and later purchased in 1942 by the Chesapeake Western Railway. The new short-line was formed in 1993 by several major shippers, and adopted the old historic name which was not in use. The Shenandoah Valley Railroad is operated under contract. The Buckingham Branch RR was the contract operator between 1993 and 2003, and the Bay Coast Railroad (BCR) was the contract operator between April 2003 and August 2006. As of September 1, 2006 the Durbin and Greenbrier Valley Railroad (DGVR) became the contract operator. DGVR operates four excursion trains on scenic routes in nearby West Virginia. The railroad interchanges with the Buckingham Branch Railroad (BB) in Staunton, along with Norfolk Southern in Pleasant Valley, Virginia.

5.5.9. Winchester and Western Railroad Co. (WW)

WW is Virginia's oldest operating shortline. The 54 mile FRA Class III railroad operates between Gore and Winchester, Virginia, and from Winchester, up though the Eastern Panhandle of West Virginia, to Hagerstown, Maryland. The Winchester and Western is exclusively a freight line with connections to CSX Transportation and Norfolk Southern.

The Winchester and Western Railroad has a partnership with H.H. Omps Trucking to transport bulk materials from Omps' facilities in Winchester, VA.

5.5.10. Deepwater Terminal Railroad (DWT)

The Port of Richmond Deepwater Terminal Railroad (DWT) owns approximately four miles of track from downtown Richmond to the Port of Richmond on the west side of the James River. DWT is a terminal and switching shortline railroad served directly by CSX, and indirectly by NS via a switching agreement. DWT extends south between the James River and I-95 within Richmond City limits and primarily serves the Port's imports and exports of containers and miscellaneous bulk cargo.

5.6. Passenger Rail

For nearly two centuries, railroads have been part of Virginia's and the Nation's heritage and history. Trains enabled the development of our major inland cities, settlement of our rural areas, and they opened up the West for expansion. However, trains are not just part of our past, they are a significant part of our present and a critical part of our future for effective passenger and freight rail movements, particularly as energy costs and fuel prices continue to rise.

On a local level, passenger rail is a proven engine of economic development and growth. Studies show that when passenger rail service is introduced into a community, retail establishments flourish, commercial and residential property values increase and people enjoy the transportation choices they are able to make in their daily lives.

On a regional level, passenger trains can provide cost-effective and convenient intermodal connections between communities and other modal choices, such as bus, trolley, light rail, bicycle, airport, and park and ride facilities, and expand economic development opportunities.

On a national level, passenger trains provide an economic means of expanding capacity, transportation options and connectivity, mobility for underserved populations, congestion mitigation, local air quality attainment improvements, and jobs - not just in the railroad industry - but also in secondary support industries which enable and stimulate economic development activity.

On a global level, passenger rail conserves energy, helps reduce greenhouse gas emissions, reduces airborne particulate and toxic emissions, and provides an environmentally benign land use alternative to impermeable asphalt surfaces that contribute to the pollution of our waterways.

Any reliable, safe, on-time and sensible passenger rail transportation network must be cost effective and competitive with alternative modes. With limited and often competing resources, any proposed service improvement scenario must be carefully evaluated.

There are currently two passenger railroads operating in Virginia on approximately 616 miles of track owned primarily by NS and CSX. Collectively, these two passenger railroads, Amtrak and VRE, carried nearly 7.2 million passengers in and through Virginia during 2009. For purposes of terminology, a "boarding" occurs when a passenger initiates a trip at a rail station, and an "alighting" occurs when the passenger steps off the train at their destination station. Every rider therefore makes both a boarding and an alighting during their trip. Ridership is defined as one-half of the total boardings plus alightings occurring at rail stations on the passenger train route.

The following paragraphs summarize the locations and operational characteristics of these two passenger railroads (CFR Sec. 266.15 FRA Requirements for State Rail Plan – [c.2.iii] location of passenger service). Amtrak and VRE are passenger rail services eligible for assistance under CFR Sec 266.7 (CFR Sec. 266.15 FRA Requirements for State Rail Plan – [c.3.i] eligibility of rail lines).

5.6.1. Amtrak Intercity Rail

When established in 1971, Amtrak was required to operate a basic system of corridor and long distance routes as designated by the United States Department of Transportation. Amtrak's enabling legislation (Rail Passenger Service Act) provided for states to contract for additional service. Under this provision, known as Section 403(b), the percentage of costs paid by states changed many times. From 1971 to 1995, Amtrak bore the majority of operating losses attributable to state-supported service, since states paid only a percentage of avoidable costs. However, Section 403(b) of the Rail Passenger Service Act was repealed in 1997, and subsequent legislative directives and current funding levels preclude Amtrak from operating additional services unless those services are state-supported. Any expansion of rail passenger service in Virginia would therefore have to be state-supported.

Figure 5-13 depicts the existing Amtrak national passenger service map and Figure 5-14 depicts the existing Amtrak routes serving Virginia. Ridership by station is shown in Figure 5-15 and Figure 5-16 depicts the annual ridership on Amtrak routes between 2000 and 2009. As can be concluded from Figure 5-16, there has been a steady increase in passenger rail usage in Virginia since 2003, averaging about a 5% increase in ridership per year. This has been lower than Amtrak's 12 percent national annual average in ridership increase since 2002. However, recent increases in fuel and energy prices have generated a higher demand for passenger rail that should result in an even higher annual ridership increases than the increases experienced over the past few years.

In 2009, Amtrak operated 20 daily intercity trains and two tri-weekly trains in the Commonwealth with 1,032,253 passengers either boarding or alighting within Virginia (a state ridership of 516,127). Including passengers on the routes from other states that are passing through Virginia, the total ridership was 3,311,759 passengers. Additionally, Amtrak estimates that of the 3.7 million Amtrak passengers who annually use the Washington D.C. Union Station, well over 1 million reside in Virginia.

Amtrak expended $82,559,962 for goods and services in Virginia in FY08. At the end of FY08, Amtrak employed 813 Virginia residents, and the total wages of Amtrak employees living in Virginia were $58,247,567.

According to the FRA's quarterly report dated October 2009, on-time performance for 2009 across the entire Amtrak system was 80 percent, an increase of 9.2 percentage points over the previous year. Amtrak's short distance routes outside of the Northeast Corridor have experienced a 10 percentage-point increase year-over-year for an average endpoint on-time performance of 80.2 percent while long-distance trains have experienced a 20 percentage-point increase during the same period for an average endpoint on-time performance of 74.3 percent. In the Southeast Corridor, the *Palmetto*, *Carolinian*, and *Silver Star* have experienced notable year-over-year improvements to their endpoint on-time performance increases of 16, 20, and 23 percentage points respectively. Overall, however, these three routes are in Amtrak's bottom half for on-time arrivals.

Each host railroad route over which Amtrak travels has the same obligation under federal law to prioritize Amtrak trains. However, each Class I railroad faces different challenges to meeting that obligation. Amtrak delays are usually due to insufficient rail capacity and the need for additional infrastructure investment by freight railroads. Operating models for freight and passenger rail are polar opposites. Freight rail succeeds when demand is greater than capacity. Contrarily, passenger rail succeeds when capacity is greater than demand.

Bridging this operational chasm is critical to resolving the dilemma of on-time performance for passenger rail. According to Amtrak, policymakers and others consider the impact of the constrained national system on the economy and transportation systems, the current scenario hampers growth and their mission to provide reliable service.

Amtrak's ability to efficiently execute operating and capital plans for the future would be greatly enhanced by federal legislation that provides a multi-year funding structure (historically, Amtrak has operated on a year-to-year basis, making consistent implementation of programs difficult), that allows cost sharing with the states and provides for public-private partnerships with Class I railroads to make needed rail improvements that would support improved passenger rail performance and capacity.

Brief descriptions of the eight Amtrak passenger routes that serve Virginia are discussed in the following paragraphs. The on-time performance for each route is presented for each route, and is generally significantly below the 90-95 percent on-time performance goal that DRPT established for all passenger rail service providers to achieve in the Commonwealth.

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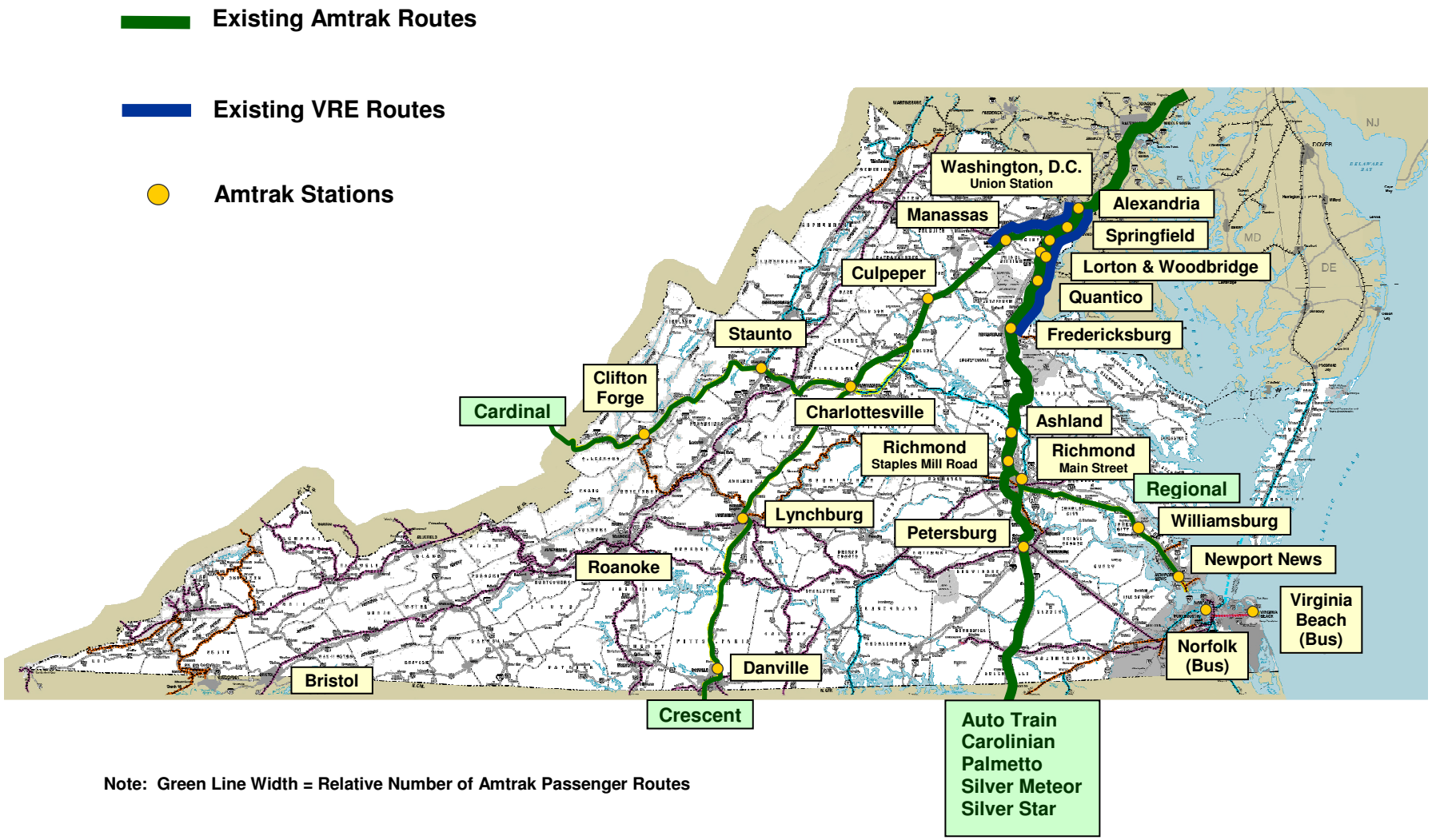
Figure 5-13. Amtrak National Passenger Rail Routes
(Source: Amtrak)



Note: Green Line Width = Relative Number of Amtrak Passenger Routes

Figure 5-14. Passenger Routes Serving Virginia

		Annual Ridership Statistics - Source: Amtrak FY 2009								
		Northeast Corridor	79/80 Carolinian	89/90 Palmetto	91/92 Silver Star	97/98 Silver Meteor	53/52 Auto Train	19/20 Crescent	50/51 Cardinal	TOTALS
	Station	Regional*								
Boardings & Alightings										
	Alexandria	66,033	16,979	10,505	8,683	5,682		8,363	3,125	119,370
	Woodbridge	6,270								6,270
	Quantico	11,573	3,336	56						14,965
	Fredericksburg	33,796	7,646	160						41,602
	Ashland	16,634								16,634
	Richmond (Main St.+ Staples Mill)	184,362	30,967	28,969	16,039	13,271				273,608
	Williamsburg	48,013								48,013
	Newport News	107,306								107,306
	Manassas							6,008	2,694	8,702
	Culpeper							3,460	1,354	4,814
	Charlottesville							33,694	17,535	51,229
	Lynchburg							23,011		23,011
	Danville							5,870		5,870
	Staunton								6,094	6,094
	Clifton Forge								3,703	3,703
	Other Virginia	38,420	5,641	5,056	6,860	3,001	232,644	4,715	4,716	301,053
	Outside Virginia	2,108,685	762,927	619,694	428,490	514,568		900,566	256,343	5,591,273
*Only includes Regional trains operating south of Washington										
	Virginia Boardings & Alightings	512,407	64,569	44,746	31,582	21,954	232,644	85,121	39,221	1,032,244
	Virginia Ridership	256,204	32,285	22,373	15,791	10,977	116,322	42,561	19,611	516,122
	Outside Virginia Boardings & Alightings	2,108,685	762,927	619,694	428,490	514,568	0	900,566	256,343	5,591,273
	Outside Virginia Ridership	1,054,343	381,464	309,847	214,245	257,284	0	450,283	128,172	2,795,637
	Total Route Boardings & Alightings	2,621,092	827,496	664,440	460,072	536,522	232,644	985,687	295,564	6,623,517
	Total Ridership	1,310,546	413,748	332,220	230,036	268,261	116,322	492,844	147,782	3,311,759

Figure 5-15. Annual Amtrak Ridership by Station – Virginia (2009)
(Source: Amtrak)

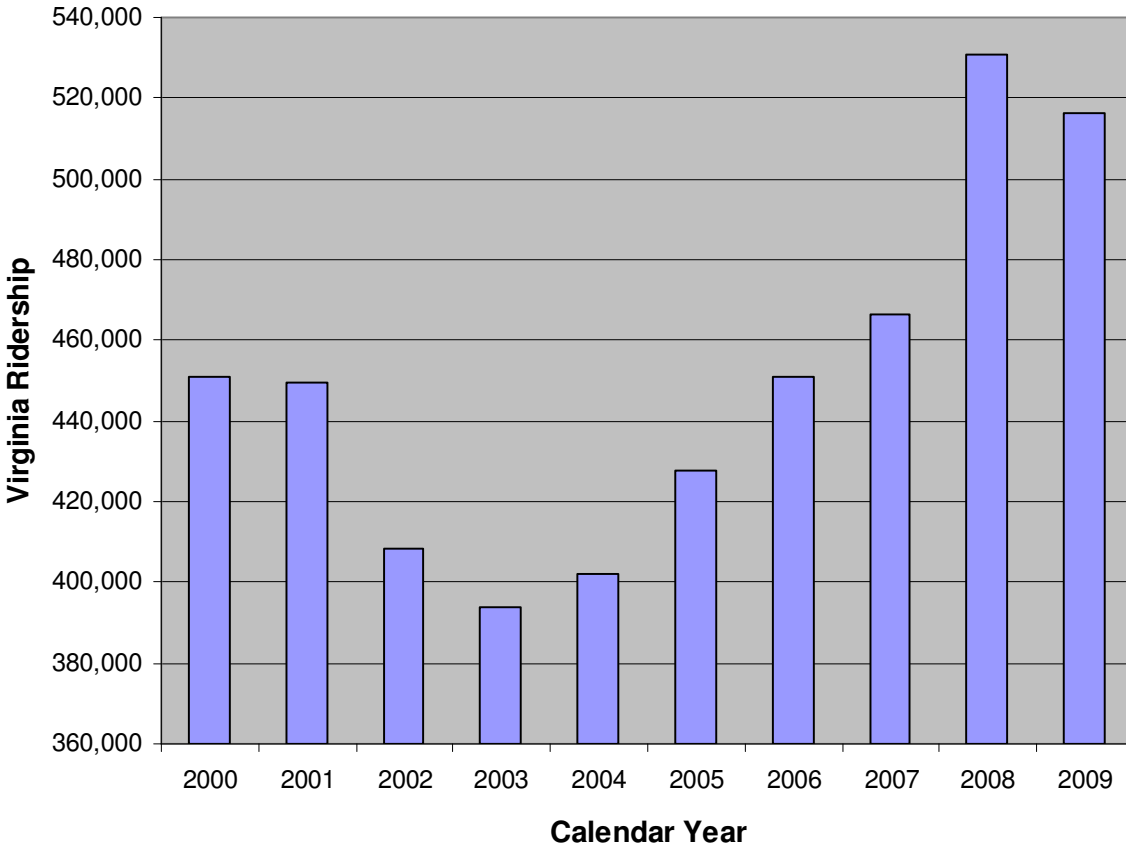


Figure 5-16. Amtrak Annual Virginia Ridership (2000 – 2009)
(Source: Amtrak)

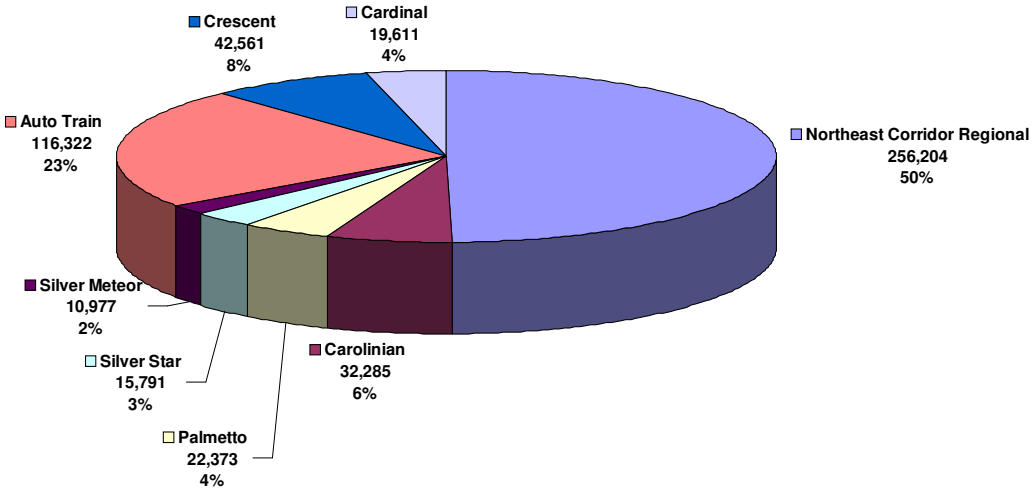


Figure 5-17. Amtrak - Virginia Ridership
Virginia Routes (Commonwealth passengers only = 516,122)

5.6.1.1. Northeast Corridor Regional Route

This route provides daily passenger rail service from Newport News to Boston. Amtrak station stops in Virginia include Newport News, Williamsburg, Richmond (Main Street), Richmond (Staples Mill), Ashland, Fredericksburg, Quantico, Woodbridge, Springfield, Alexandria, and Washington, D.C. Service is provided on CSX tracks. Currently there are 4 daily round trips to Richmond with two continuing to Newport News. Annual ridership in 2009 was 256,204 passengers from Virginia, and a total ridership of 1,310,546 passengers including out-of-state passengers. On-time performance for FY2009 was 81.6 percent. This regional service (which includes the I-95 and I-64 transportation corridors) carried approximately 50 percent of all Amtrak passengers in Virginia in 2009 as depicted in Figure 5-17.

5.6.1.2. Carolinian Route (Train 79/80)

This route provides daily passenger rail service from Charlotte, NC to New York City. Amtrak station stops in Virginia include Petersburg, Richmond (Staples Mill), Fredericksburg, Quantico, Alexandria, and Washington, D.C. Service is provided on a combination of NS, CSX, and Amtrak tracks. Annual ridership in 2009 was 32,285 passengers from Virginia, and a total ridership of 413748 passengers including out-of-state passengers. On-time performance for FY2009 was 55.4 percent. This rail service is part of the I-95 transportation corridor.

5.6.1.3. Palmetto Route (Train 89/90)

This route provides daily passenger rail service from Savannah, GA to New York City. Amtrak station stops in Virginia include Petersburg, Richmond (Staples Mill), Alexandria, and Washington, D.C. Service is provided on a combination of CSX and Amtrak tracks. Annual ridership in 2009 was 22,373 passengers from Virginia, and a total ridership of 332,220 passengers including out-of-state passengers. On-time performance for FY2009 was 64.1 percent. This rail service is part of the I-95 transportation corridor.

5.6.1.4. Silver Star Route (Train 91/92)

This route provides daily passenger rail service from Miami and Tampa, FL to New York City. Amtrak station stops in Virginia include Petersburg, Richmond (Staples Mill), Alexandria, and Washington, D.C. Service is provided on a combination of CSX and Amtrak tracks. Annual ridership in 2009 was 15,791 passengers from Virginia, and a total ridership of 230,036 passengers including out-of-state passengers. On-time performance for FY2009 was 66.9 percent. This rail service is part of the I-95 transportation corridor.

5.6.1.5. Silver Meteor Route (Train 97/98)

This route provides daily passenger rail service from Miami, FL to New York City. Amtrak station stops in Virginia include Petersburg, Richmond (Staples Mill), Alexandria, and Washington, D.C. Service is provided on a combination of CSX and Amtrak tracks. Annual ridership in 2009 was 10,997 passengers from Virginia, and a total ridership of 268,261 passengers including out-of-state passengers. On-time performance for FY2009 was 69.2 percent. This rail service is part of the I-95 transportation corridor.

5.6.1.6. Auto Train Route (Train 53/52)

This route provides direct daily passenger rail service and automobile transfers between Lorton, VA and Sanford, FL (no station stops in between). Service is provided on CSX tracks. Annual ridership in 2009 was 116,322 passengers from Virginia, and a total ridership of 217,822 passengers including out-of-state passengers. On-time performance for FY2009 was 87.5.2 percent. This rail service is part of the I-95 transportation corridor.

5.6.1.7. Crescent Route (Train 19/20)

This route provides daily passenger rail service from New Orleans to New York City. Amtrak station stops in Virginia include Danville, Lynchburg, Charlottesville, Culpeper, Manassas, Alexandria, and Washington, D.C. Service is provided on a combination of NS and Amtrak tracks. Annual ridership in 2009 was 42,561 passengers from Virginia, and a total ridership of 492,844 passengers including out-of-state passengers. On-time performance for FY2009 was 84.1 percent. This rail service is part of the I-81 and Route 29 transportation corridors.

5.6.1.8. Cardinal Route (Train 50/51)

This route provides passenger rail service three times a week from Chicago to New York City. Amtrak station stops in Virginia include Clifton Forge, Staunton, Charlottesville, Culpeper, Manassas, and Washington, D.C. Service is provided on a combination of NS, CSX, BB and Amtrak tracks. Annual ridership in 2009 was 19,611 passengers from Virginia, and a total ridership of 147,782 passengers including out-of-state passengers. On-time performance for FY2009 was 51.3 percent (see Figure 5-18). This rail service is part of the I-81 and Route 29 transportation corridors.

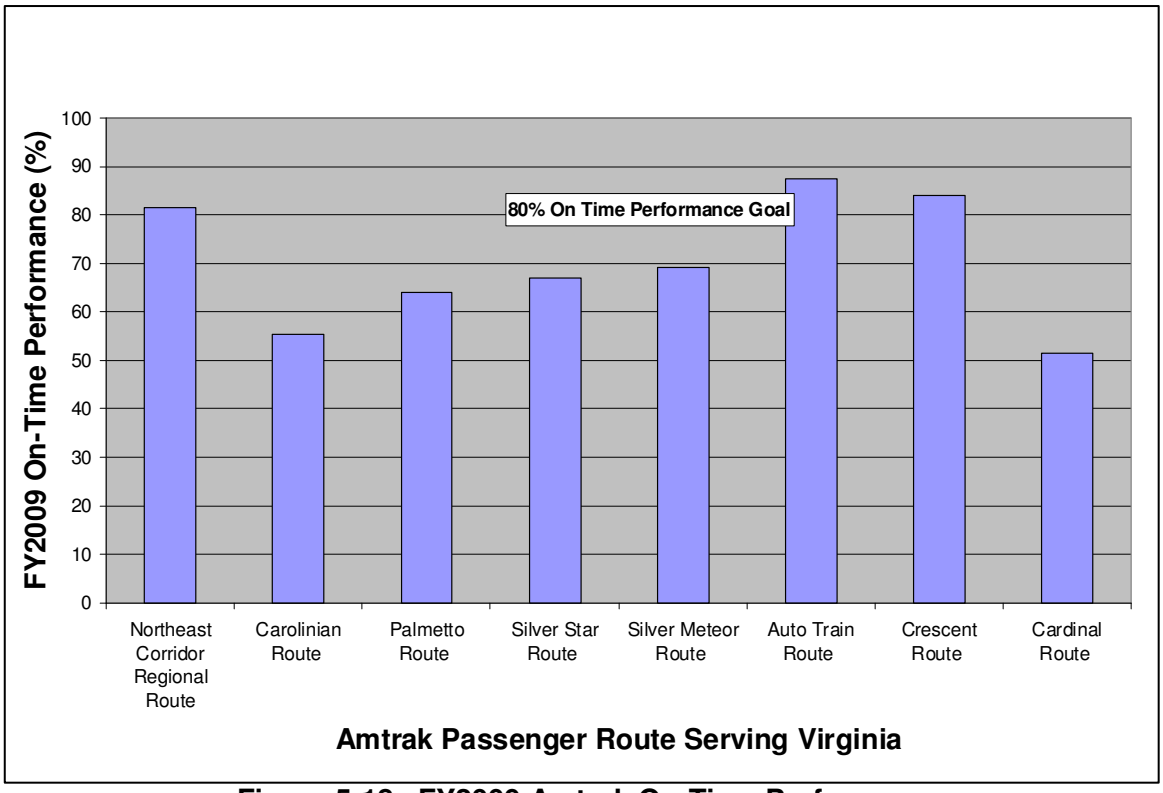


Figure 5-18. FY2009 Amtrak On-Time Performance
(Source: Amtrak)

5.6.2. Virginia Railway Express

The VRE was founded in 1992 with a vision to provide a safe, convenient, energy-efficient public transportation alternative to driving congested highways from the Northern Virginia suburbs to the business districts of Alexandria, Crystal City and Washington, D.C. Each weekday, VRE now operates 31 trains over two branch lines, covering 90 route miles and serves 18 stations in eight Northern Virginia jurisdictions, and carrying upwards of 15,000 passenger trips per day. VRE currently operates with an annual overall on-time performance of between 80 percent and 91 percent. Ridership growth has averaged 16 percent per year and the existing system is currently operating at full capacity (trains, parking areas, etc.). Capacity is a big concern as VRE is expected to double its ridership in the next 20 years. A route map of the VRE system is depicted in Figure 5-19.

In 2008 VRE reported a total ridership of 3,628,563 passengers. This represented an average of 15 trains per day on the Fredericksburg Line with 1,949,829 passengers per year (I-95 corridor); and an average of 16 trains per day on the Manassas Line with 1,678,734 passengers per year (I-66 and Route 29 corridors). VRE operates on NS tracks for the Manassas route, and CSX tracks for the Fredericksburg Route. VRE commuter trains are operated by Amtrak under contract with the Northern Virginia and Potomac and Rappahannock Transportation Commissions. On-time performance for the first five months CY2009 was 91.5 percent.

Organizationally, the Virginia Railway Express is a joint operation undertaken by two commissions – the Northern Virginia Transportation Commission (NVTC) and the Potomac and Rappahannock Transportation Commission – which represent the Northern Virginia counties and municipalities in the service area. Members of both entities sit on the VRE Operations Board, which governs VRE. Daily operations and capital projects are financed from a combination of federal, state and local grants, and through the sale of tickets (often referred to as the fare box revenues).

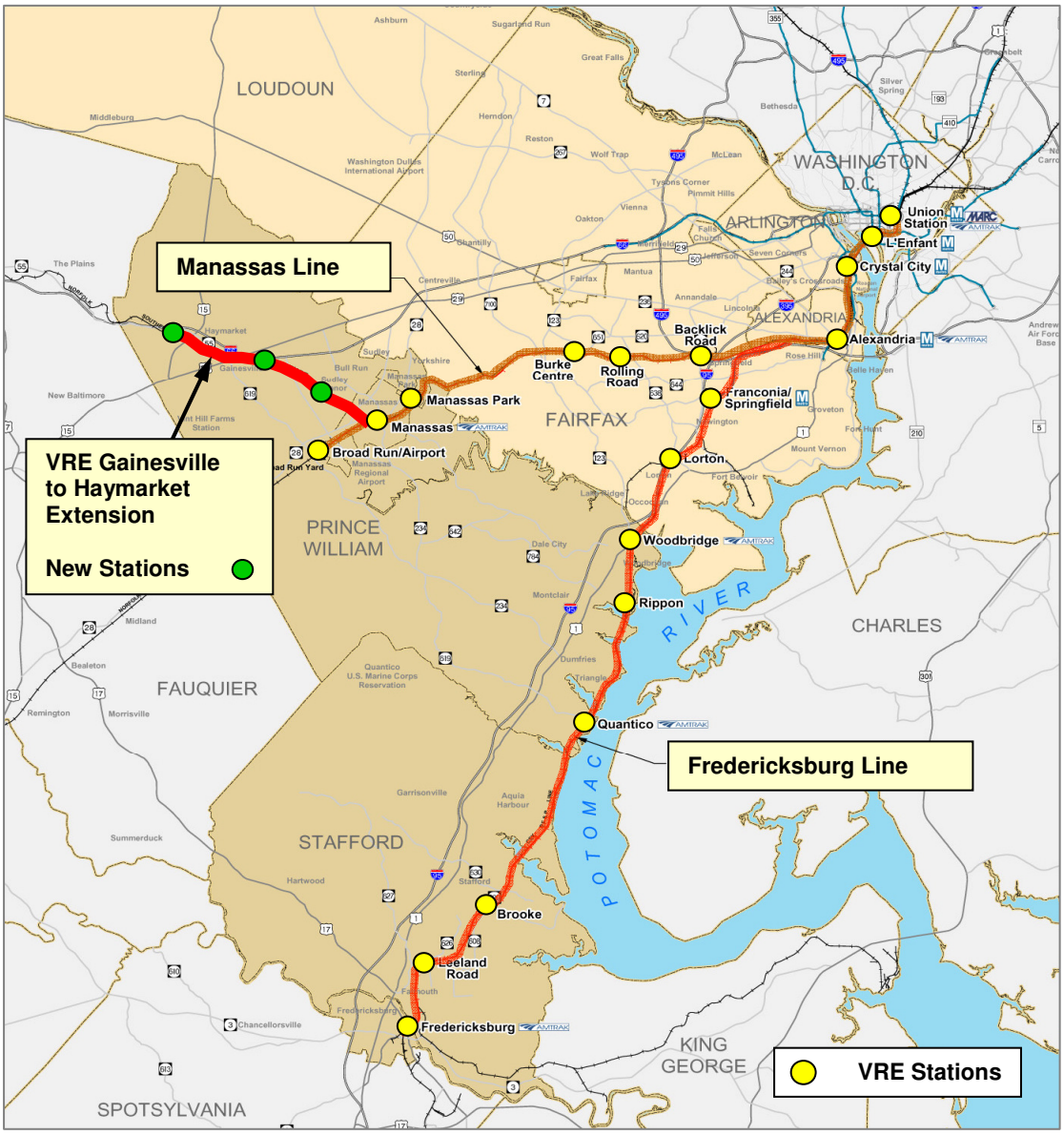


Figure 5-19. VRE System Map
(Source: VRE)

5.6.2.1. VRE Gainesville-Haymarket Extension

According to VRE, the proposed Gainesville-Haymarket would extend VRE commuter rail service for 11 miles between the City of Manassas and Haymarket, located in Prince William County, Virginia. The VRE extension would use an existing railroad right-of-way owned by Norfolk Southern Corporation that currently is used exclusively by freight trains. An extensive upgrade of the rail line will be required to make the line suitable for passenger service.

5.6.3. Excursion Trains and Tourism

Excursion trains contribute to tourism in states where scenic routes or special attractions exist (such as routes along rivers, mountains, “wine” trains, etc.). Often the locomotive is steam-powered and the cars are restored antique parlor cars. The primary purpose of an excursion trip is the passengers experience and enjoyment of this unique means of transportation. As a full-time operation, close ties to an attraction or a museum are often required for excursion trains to survive.

In Virginia, there are no full-time excursion trains, but several shortlines currently provide excursion train opportunities on a limited basis. These include:

- Buckingham Branch Railroad (BB), which in cooperation with the Old Dominion Chapter of the National Railway Historical Society provides a charter excursion service when requested, as well as scheduled spring trips in May, fall excursions in October, and the Santa Train in December. All BB excursion trains operate out of the historic railway station in Dillwyn, Virginia.
- Bay Coast Railway (BCR) operates the former Eastern Shore Railroad line. In June 2008 BCR initiated an excursion train providing Friday and Saturday night dinner trips on its tracks along the eastern shore. The shortline is also considering “pizza trains” and wine tasting excursion trains if the dinner train proves successful.

At present in Virginia, the burden of running a tourist train operation rests solely on the operating entity. Funding for such excursion trains comes primarily from the patrons and not on the Commonwealth or federal government. Liability issues are of paramount importance on such excursion train operations.

6. DEMOGRAPHY AND TRENDS IMPACTING RAIL NEEDS

This section discusses national and Virginia growth trends for population and freight. Growth trends form part of the analytical framework in establishing passenger and freight needs for the Commonwealth for use in the development and evaluation of potential rail improvement projects (CFR Sec. 266.15 FRA Requirements for State Rail Plan – [c.1] data sources and analytical methodology).

6.1. FRA Requirements

This Chapter of the Virginia Statewide Rail Plan (VSRP) presents information related to Virginia's Transportation Network in the context of the national system. This is not a requirement of 49 CFR § 266.15

6.2. Population

6.2.1. National

Transportation, including passenger rail and freight rail needs, is driven by a number of key factors. The primary factors are population density and growth trends for the future. The U.S. population in the 2000 Census was 281,421,906. The population estimate in 2008 was 304,059,724 – an average growth rate of approximately 1.03 percent. The population density for 2007 is shown in Figure 6-1. The population density in Figure 6-1 compares favorably with the East Coast Megaregions previously discussed. According to the U.S. Census Bureau, the nation's population is projected to be approximately 378 million by 2035, and 420 million by 2050.

6.2.2. Virginia

The population in Virginia in the 2000 Census was 7,104,078. Projections of growth in the Commonwealth are shown in Figure 6-2 below. Commuting patterns of the labor force are shown in Figure 6-3. The estimated population density in Virginia in 2007 is shown in Figure 6-4. As expected, the concentration is heaviest in the metropolitan regions of Washington, D.C., Richmond, and Hampton Roads. These regions are connected by I-64 and I-95 transportation corridors. These two corridors intersect to form a "crescent", and hence this geography has been named the Crescent Corridor.

Figure 6-5 shows increase in population across the Commonwealth. The largest increases are within the Crescent Corridor. A projected increase in population is also observed along the I-81 corridor.

6.3. Growth Trends

6.3.1. National Trends

According to the recent report, *America 2050-A Prospectus*, most of the nation's rapid population growth, and an even larger share of its economic expansion, is expected to occur in 10 or more emerging megaregions: large networks of metropolitan regions, mega-regions cover thousands of square miles and are located in every part of the country. See Chapter 3 for discussion of megaregions. Virginia is part of, and a vital transportation link spanning between the megaregions of the East Coast. The emerging megaregions are defined by

layers of relationships that together define a common interest. This common interest then forms the basis for policy decisions. The five major categories of relationships that define megaregions are: 1) environmental systems and topography; 2) infrastructure systems; 3) economic linkages; 4) settlement patterns and land use: and 5) shared culture and history.

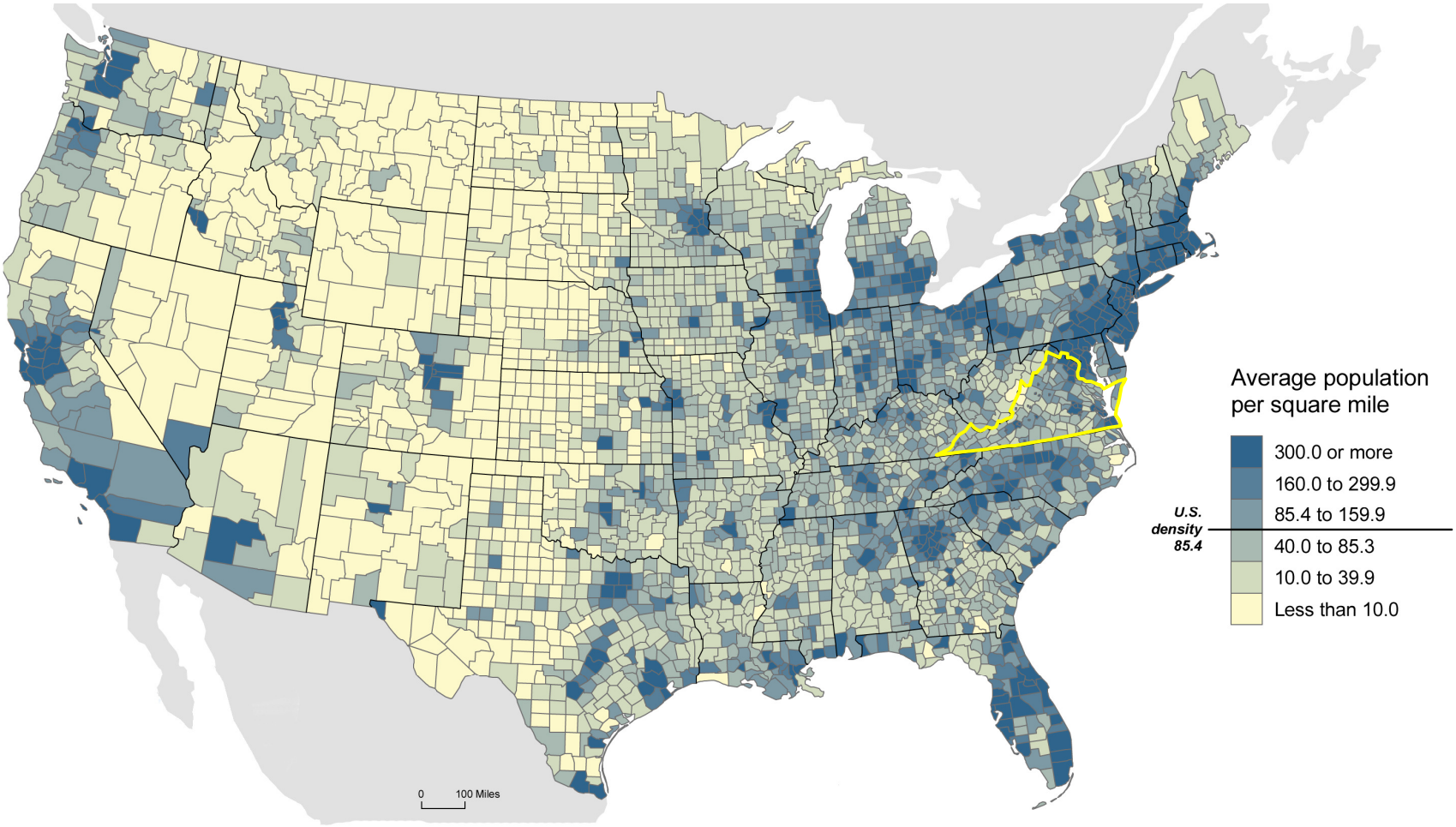
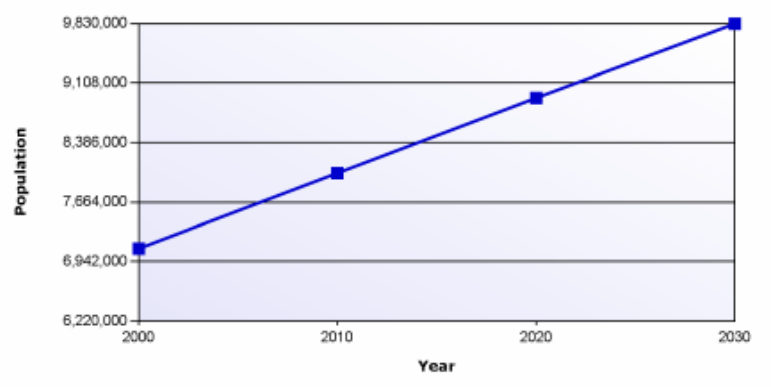
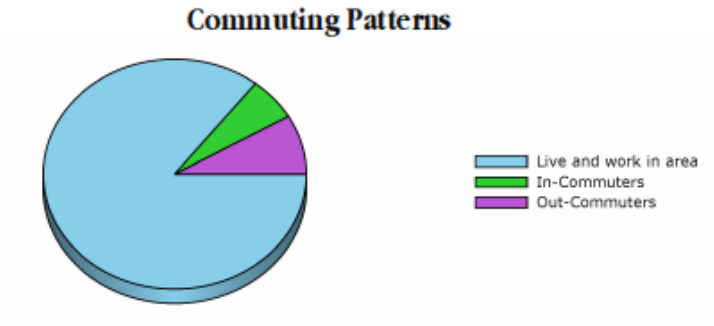


Figure 6 - 1 U.S. Population Density (2007)
(Source: U.S. Census Bureau)



	Virginia	(% change)
1990	6,216,884	
2000	7,104,078	14.27 %
2010	8,010,342	12.76 %
2020	8,917,575	11.33 %
2030	9,825,288	10.18 %

Figure 6 - 2 Population Change Projects for Virginia
(Source: Virginia Employment Commission)



Commuting Patterns	
People who live and work in the area	3,164,052
In-Commuters	224,720
Out-Commuters	311,072
Net In-Commuters (In-Commuters minus Out-Commuters)	-86,352

Figure 6 - 3 Commuting Patterns in Virginia
(Source Virginia Employment Commission)

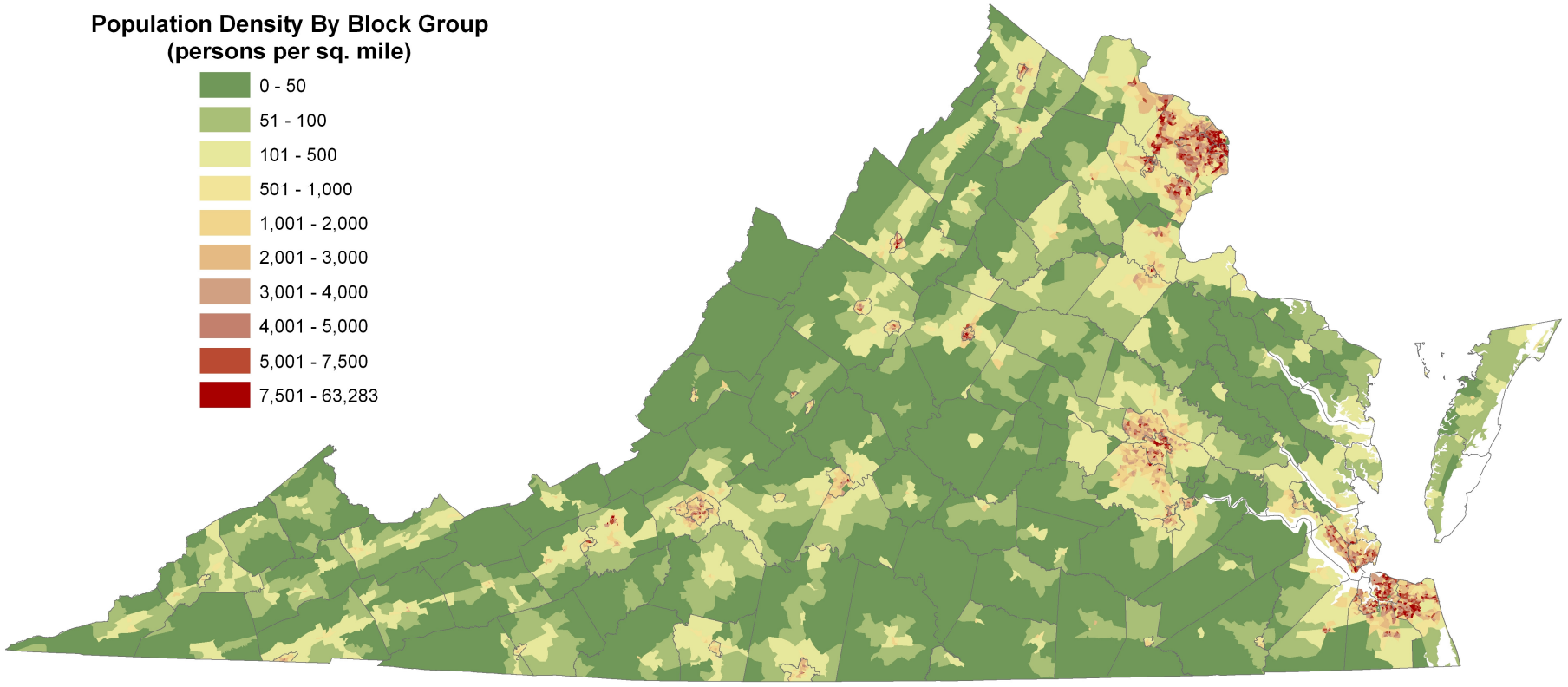


Figure 6 - 4 Population Density in Virginia (2007)
(Source: Environmental Research Institute / U.S. Census Bureau)

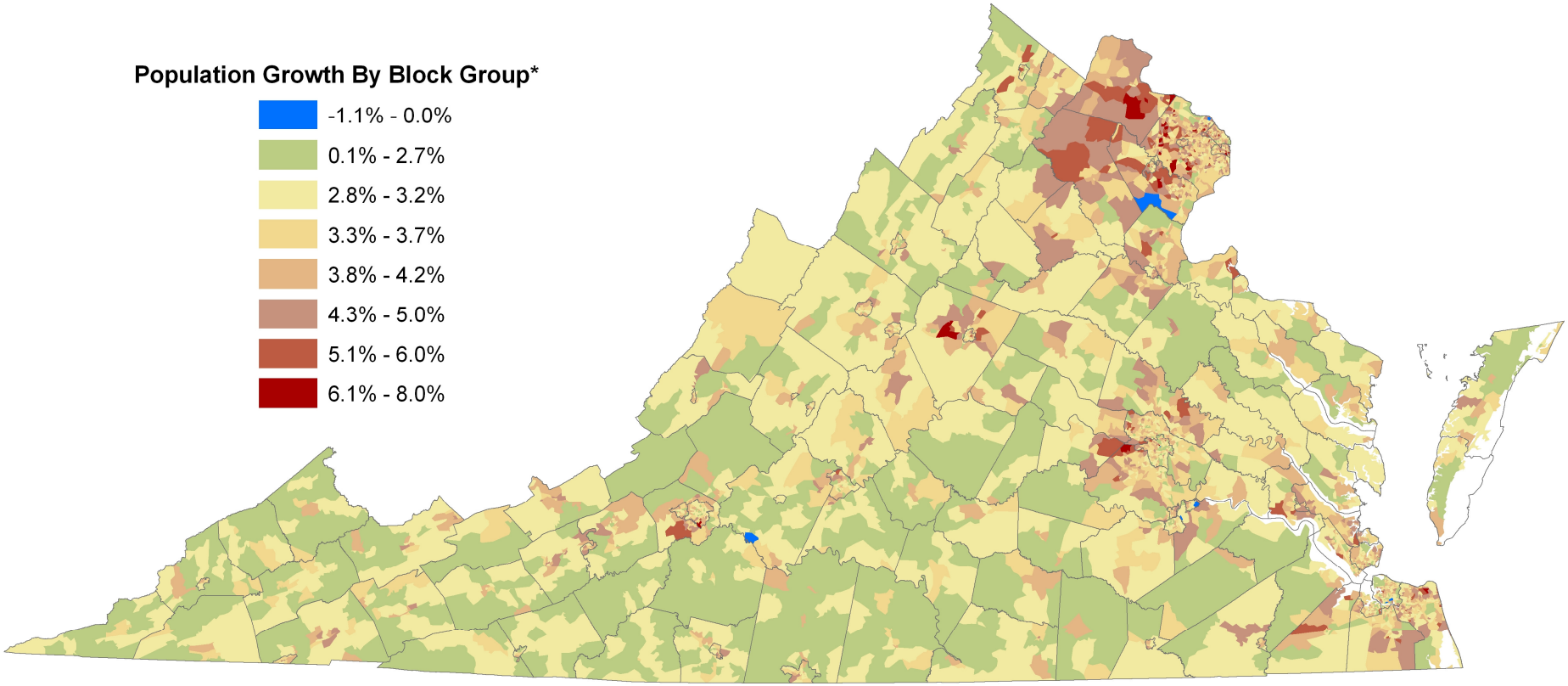


Figure 6 - 5 Forecasted Population Growth Rate in Virginia : 2007 - 2012
(Source: Environmental Research Institute)

Challenges, such as transportation, span across multi-state regions and cannot be solely solved at the state level. One example of a challenge that requires coordination at the megaregional scale is the challenge of moving goods efficiently from coastal ports through congested metropolitan areas to reach inland destinations. The *America 2050* report states that one way megaregions can prepare for future population pressures is by marshalling resources to make major investments in high speed rail and other mobility infrastructure; protecting environmental resources; coordinating economic development strategies; and making land use decisions that encompass all of these.

America 2050 identified six major trends that will shape America's future. Taken together these trends provide the need for a national strategy to meet new challenges. These trends are: 1) new global trading patterns; 2) rapid population growth and demographic change; 3) inefficient land use; 4) uneven and inequitable growth patterns within and among regions: 5) the mounting energy crisis and global climate change: and 6) metropolitan infrastructure that is reaching the limits of its capacity.

6.3.2. Virginia Trends

The Commonwealth has consistently rated as one of the fastest growing and best states for business. Virginia is strategically located within the nation's transportation network - Dulles International Airport and the Port of Virginia are important international gateways, Interstates-95 and 81 represent major north-south arteries for the flow of people and goods throughout the eastern U.S., and I-64 and Route 460 serve east-west passengers and carry freight to and from the port. Close proximity to the nation's capital is advantageous and Virginia's educational institutions are widely respected as some of the best in the nation. In 2006 and 2007, Forbes.com rated Virginia as the best state for business. Accordingly, it should be no surprise that the Commonwealth is experiencing increased population and employment growth.

According to the Virginia Employment Commission, between 2007 and 2030, Virginia's population will experience an increase from the current 7.5 million to approximately 9.8 million (30 percent increase). The accompanying increase in households and workforce would be expected to be similar. It is estimated that half of these persons will require creation of new jobs. This is compared with the national population over the same time period that will increase from an estimated 308.9 million persons in 2007; to 323.5 million persons in 2030 (5 percent increase).

According to the Commonwealth's *Virginia Performs* statistics, from 2005 to 2007, Virginia's employment growth rate was ranked 18th in the nation at 2.18 percent, which was less than half of that of Utah (4.5 percent), the fastest growing state in the nation. North Carolina (2.9 percent) grew at a faster rate as shown in Figure 6-6. Virginia, however, grew at a faster rate than Tennessee (1.2 percent) and Maryland (1.1 percent). The national employment growth was 1.8 percent.

With regard to regional employment growth, data in 2007 indicates that the Northern region (2.71 percent) was the fastest growing region in the state over the previous year as shown in Figure 6-7. The West Central region exhibited a growth rate of 1.76 percent while the Central region registered 2.64 percent. Virginia's remaining regions all saw rates at or below 1.64 percent. The regions of Virginia are shown in the graphic found in Figure 6-8.

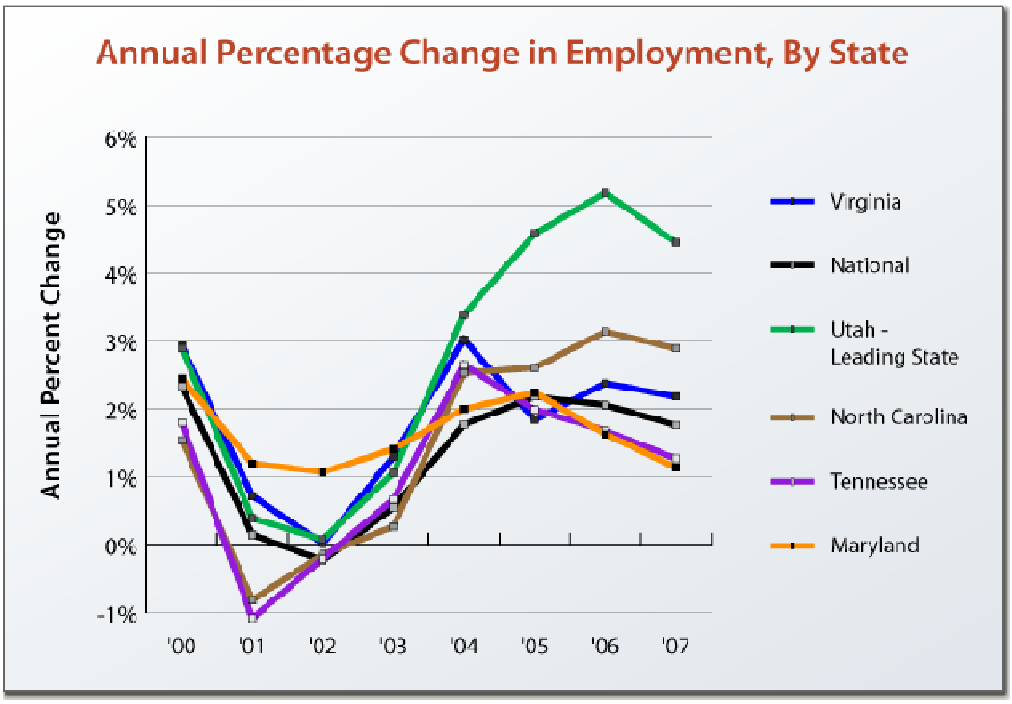


Figure 6 - 6 Annual Percentage Change in Employment by State
(Source: *Virginia Performs)*

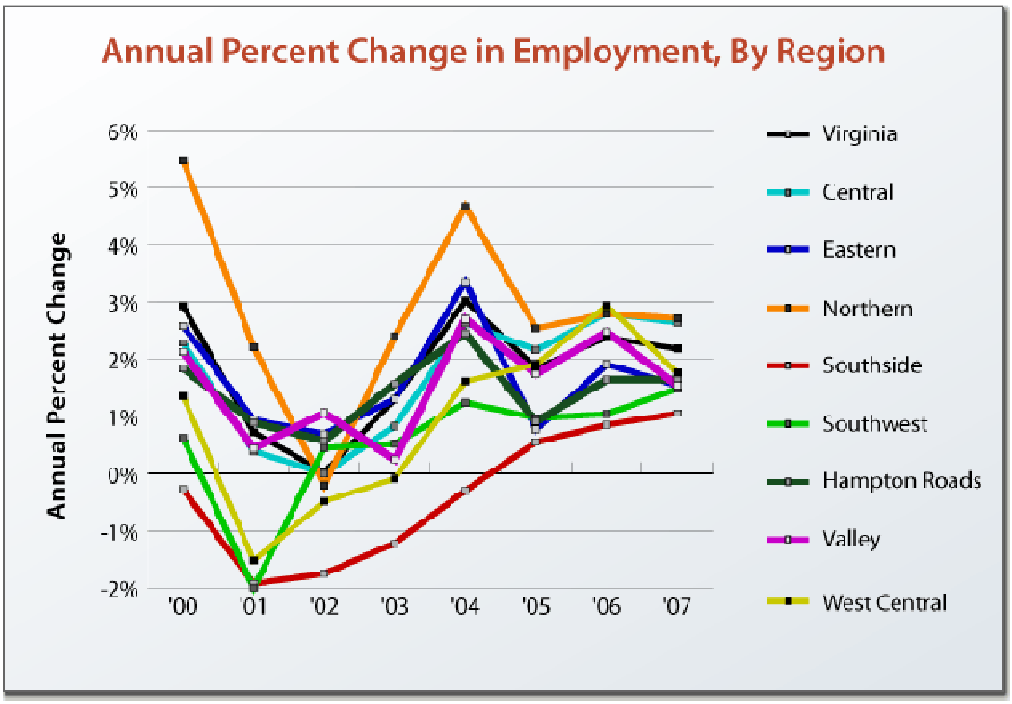


Figure 6 - 7 Annual Percentage Change in Employment by Virginia Region
(Source: *Virginia Performs)*

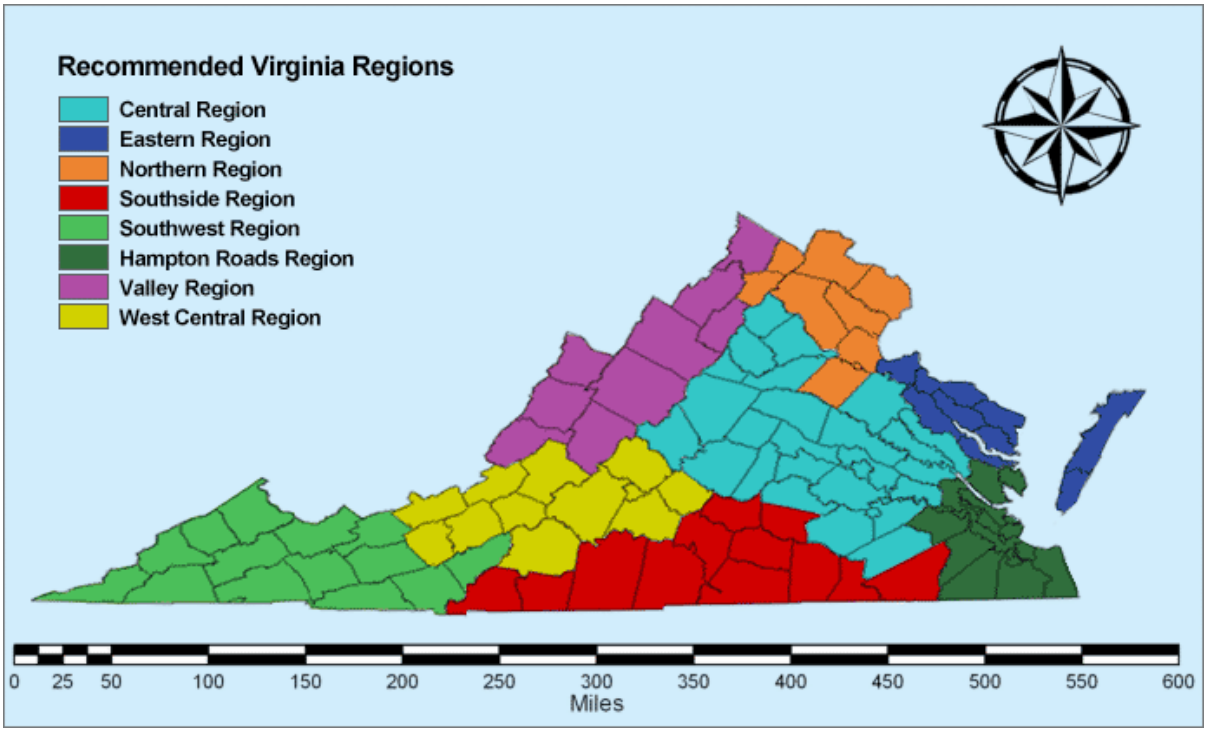


Figure 6 - 8 Virginia Regions
(Source: *Virginia Performs)*

The state's primary role in employment growth is to provide the infrastructure – transportation, education and training, workforce development, and other public services – that reduces the transaction costs associated with economic activity. Adequate infrastructure enables private business, the engine of employment growth, to better respond to emerging economic opportunities. In addition, the state can assist in employment growth by fostering a competitive business climate.

6.3.3. Growth Patterns within the Commonwealth

The Commonwealth is growing faster than the nation as a whole. Most of the growth is due to people immigrating into the state. They are drawn to Virginia because of economic opportunities in urban areas. Because of this migration, Virginia's major metropolitan areas are growing faster than the rest of the state. Two of every three Virginians now live in Northern Virginia, Richmond, or the Hampton Roads metropolitan areas. One out of every three Virginians reside in the Northern Virginia area. For the rest of the state, 70 percent of all localities have gained population while only 20 percent have lost population. Figure 6-9 provides estimated population growth for each of Virginia's planning districts. Figure 6-10 depicts the percentage increases for Virginia's counties.

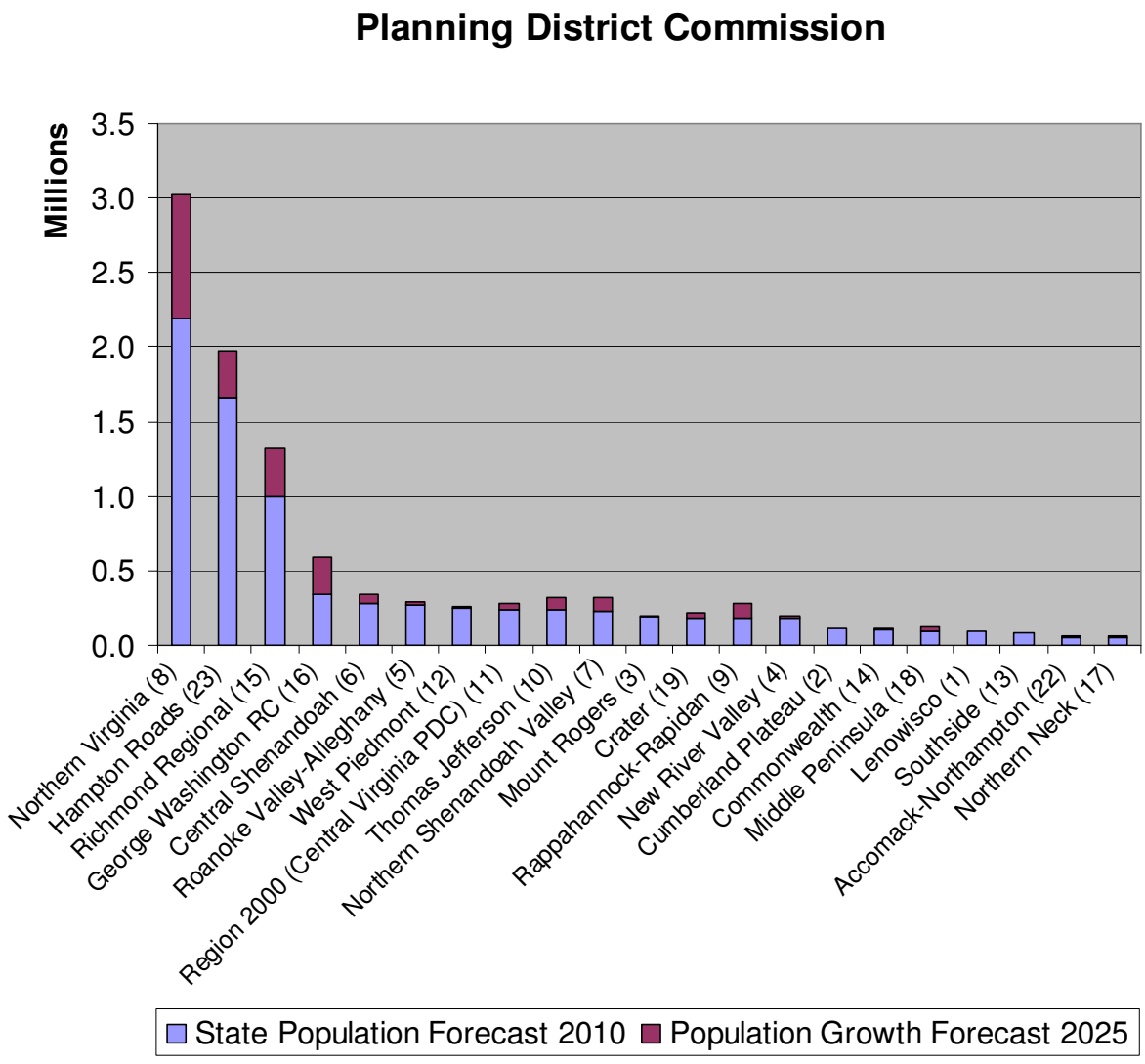


Figure 6 - 9 Population by Planning District Commission from 2010 to 2025
(Source: Virginia Transportation Research Council VTrans2035 Report, 2009)

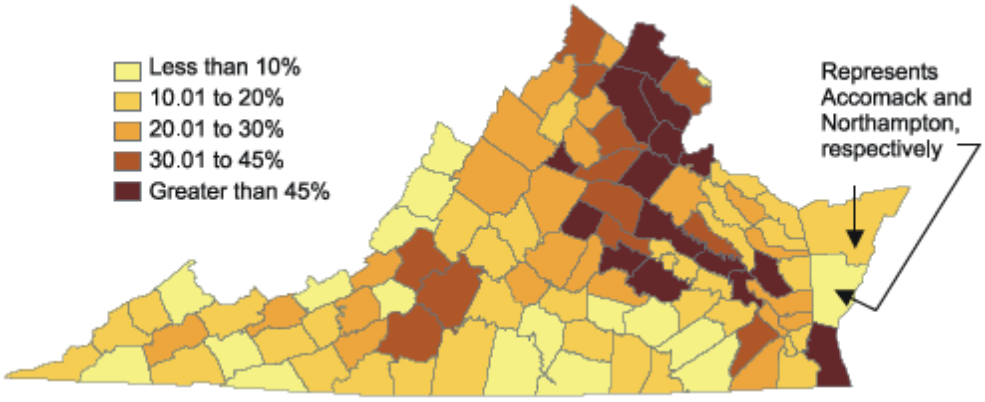


Figure 6 - 10 Projected Increase for Virginia County/City Population from 2000 to 2025
(Source: Virginia Transportation Research Council, 2003)

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6.4. Freight

6.4.1. National Trends

Freight transportation has grown dramatically with the growth and spread of population and economic activity within the United States, and with increasing interdependence of economies across the globe brought about by foreign trade. A significant impact on transportation patterns and economic development has been brought about by the global use of containerized cargo for the shipment of goods by trucks, rail and large specialty container ships calling at major ports. The projected growth in cargo by transport modes is shown in Figure 6-11. Cargo in the nation is expected to double from 15 billion tons in 2005 to approximately 30 billion tons in 2035. Although the prediction shows the vast majority of freight being handled by trucks, highway congestion and the increasing cost of fuel make an increase in the percentage of modal shift between the truck and rail very probable. Figure 6-12 indicates the projected growth patterns in truck flows between 2005 and 2035, and Figure 6-13 indicates the projected growth patterns in rail flows between 2005 and 2035. As seen in Figure 6-12, the I-95, I-81 and I-64 highways between Richmond and Hampton Roads will carry an increasing number of trucks in future years.

Figures 6-14 and 6-15 depict the current and projected 2035 rail volumes compared to rail current capacity. It should be noted that the I-95 corridor is expected to be significantly impacted even for the rail volume in the AASHTO study, which likely projected a much lesser modal shift from highway to rail than the goals of this rail plan.

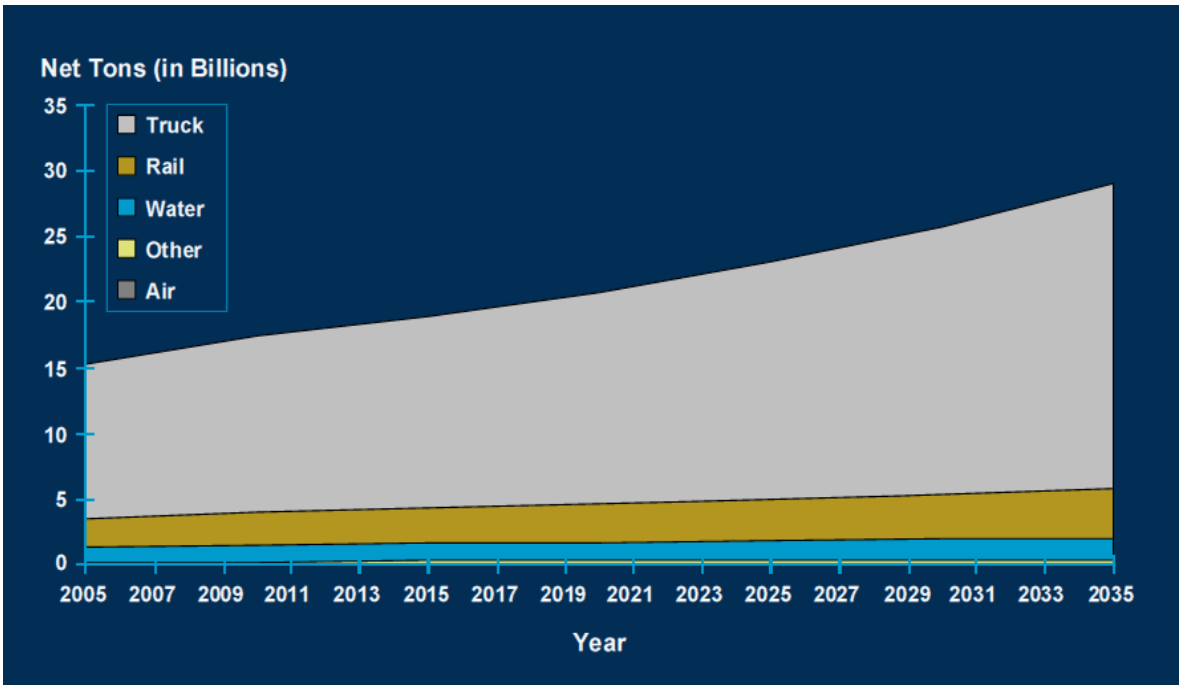


Figure 6 - 11 U.S. Freight Tonnage by Mode 2005 – 2035
(Source: Cambridge Systematics)

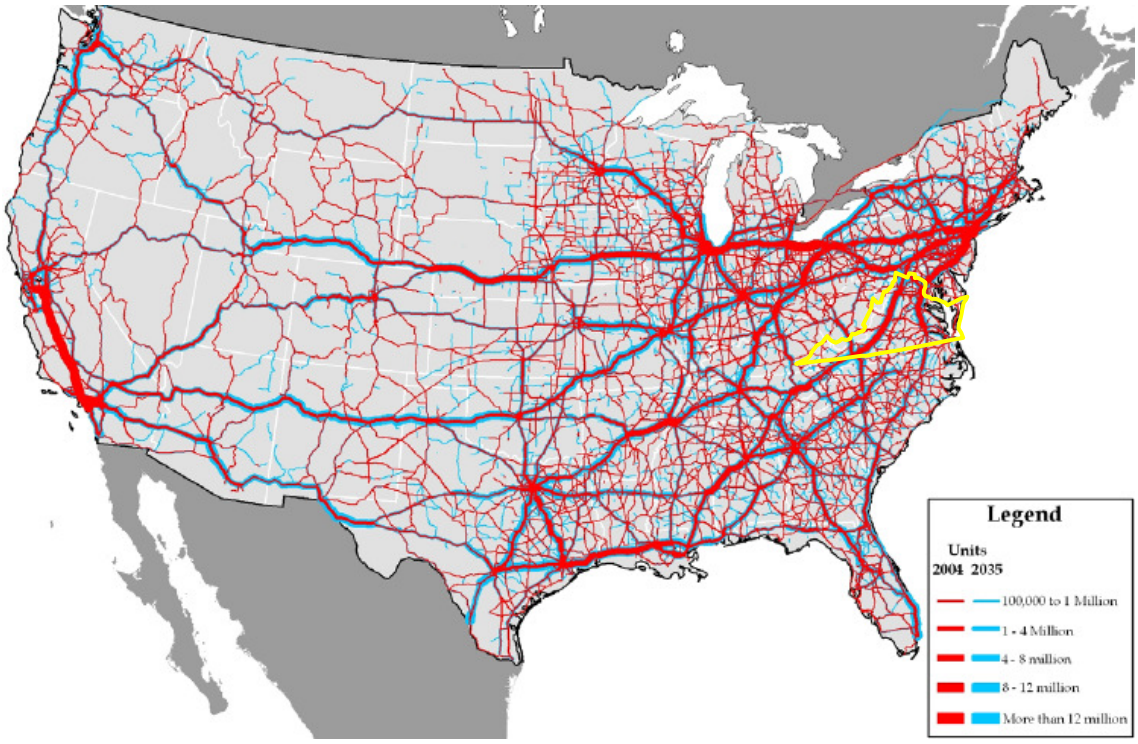


Figure 6 - 12 U.S. Truck Freight Flows 2005 – 2035

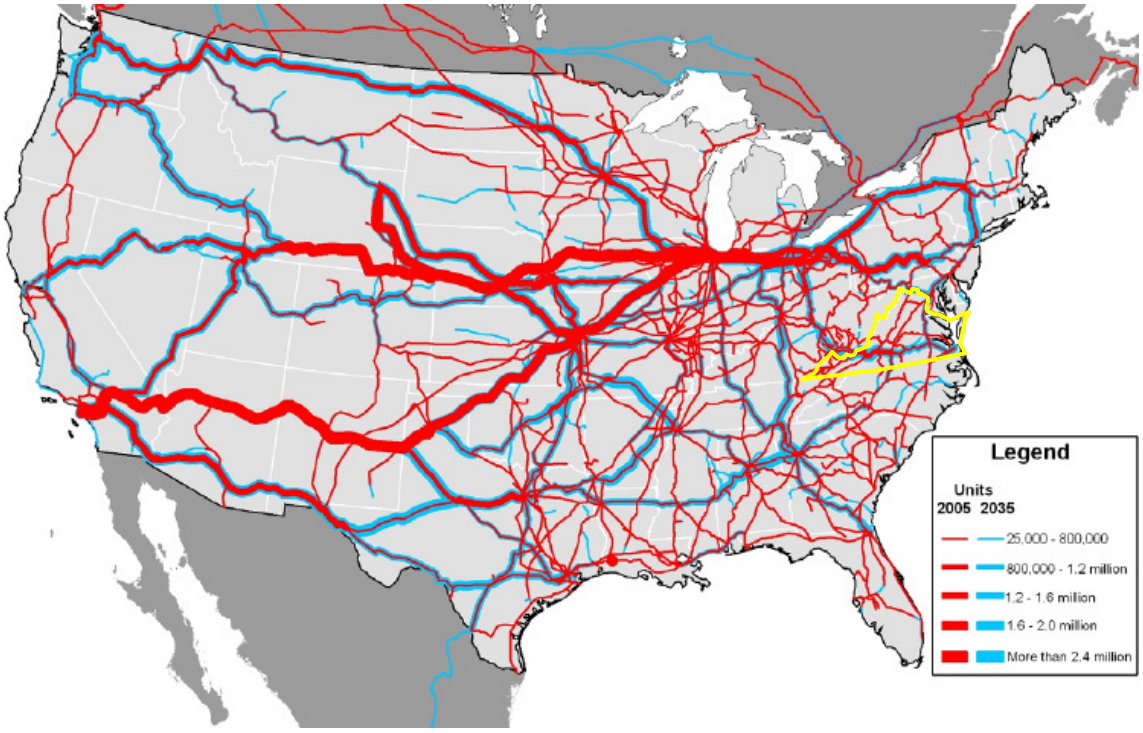


Figure 6 - 13 U.S. Rail Freight Flows 2005 – 2035

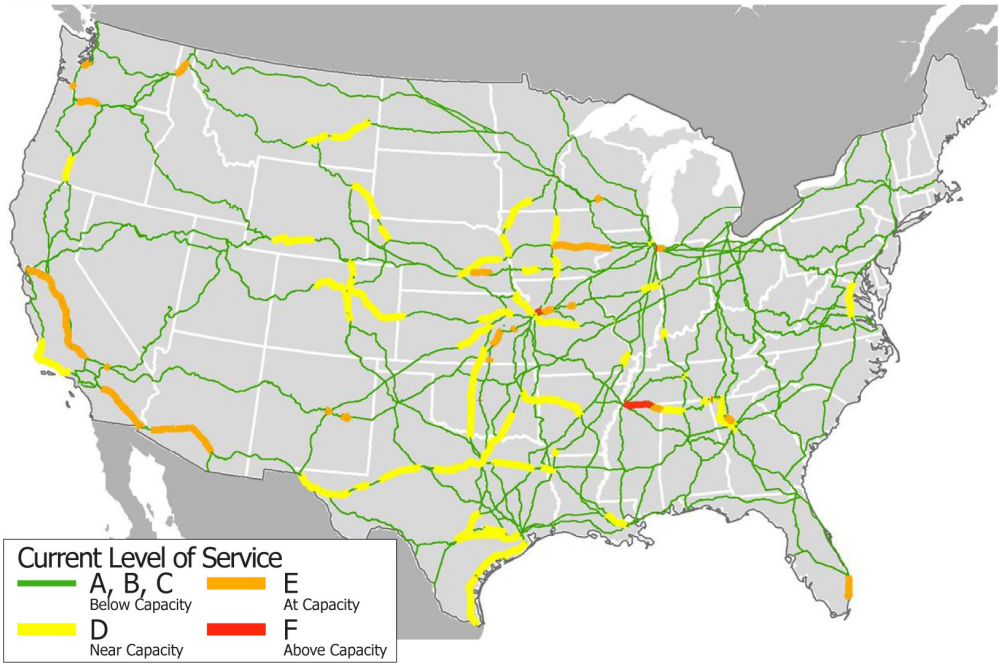


Figure 6 - 14 Rail Current Volumes Compared to Current Capacity
(Source: AASHTO)

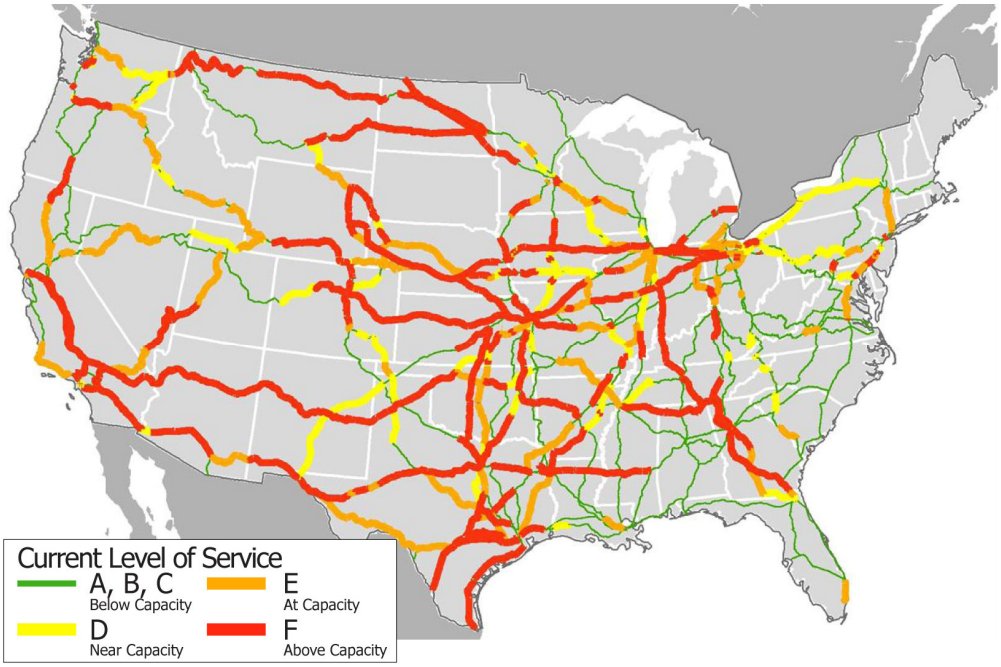


Figure 6 - 15 Rail Future Volumes in 2035 Compared to Unimproved Capacity
(Source: AASHTO)

6.4.2. Virginia Trends

A detailed evaluation of freight movements in Virginia was recently completed by Cambridge Systematics for VDOT's Transportation and Mobility Division as part of the VTrans 2035 plan currently being developed. According to this study, the movement of freight – raw materials, intermediate products, and finished goods – currently supports over $350 billion of Virginia's Gross State Product annually. To accommodate the movement of freight, Virginia hosts one of the nation's leading seaports, two national freight railroads, numerous local and regional railroads, four major cargo airports, and some of the nation's most heavily used truck corridors.

Over the next two decades, the forecast is for significant growth in the demand for freight movement into, out of, within, and through Virginia. Some of the Commonwealth's freight infrastructure is well positioned to accommodate this growth. But much of its infrastructure will be challenged – from normal wear and tear, from growth in the amount, type, and location of freight movement, from increased passenger traffic over shared highway and rail corridors, and from environmental pressures associated with higher freight volumes and/or denser settlement patterns in and around major freight facilities and corridors. Almost 80 percent of Virginia's freight tonnage has an origin or a destination in another state – including 40 percent which is simply passing through Virginia on its way to and from other states – so growth and freight improvements in other states, or the lack thereof, could significantly affect conditions in Virginia.

Today, around 50 percent of Virginia's output, 28 percent of its gross state product, and 34 percent of its employment are from freight-related industries that depend heavily on the movement of raw materials, intermediate goods, and/or finished products. The movement of existing freight tonnage by mode and direction are depicted in Figure 6-16. A projection of the increase in tonnage associated with each mode to 2035 is depicted in Figure 6-17.

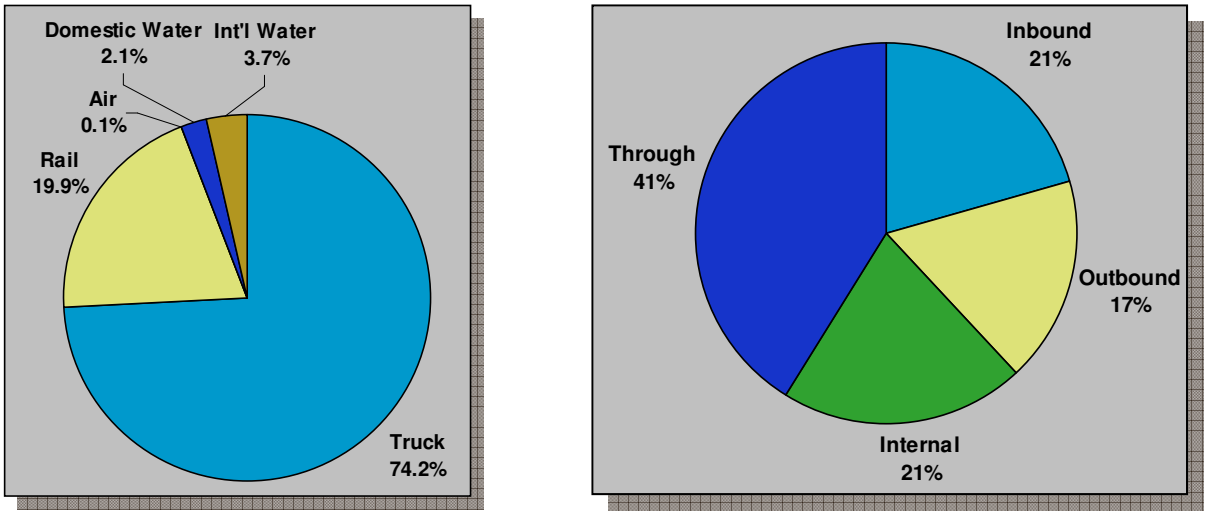


Figure 6 - 16 Virginia Freight Tonnage by Mode and Direction

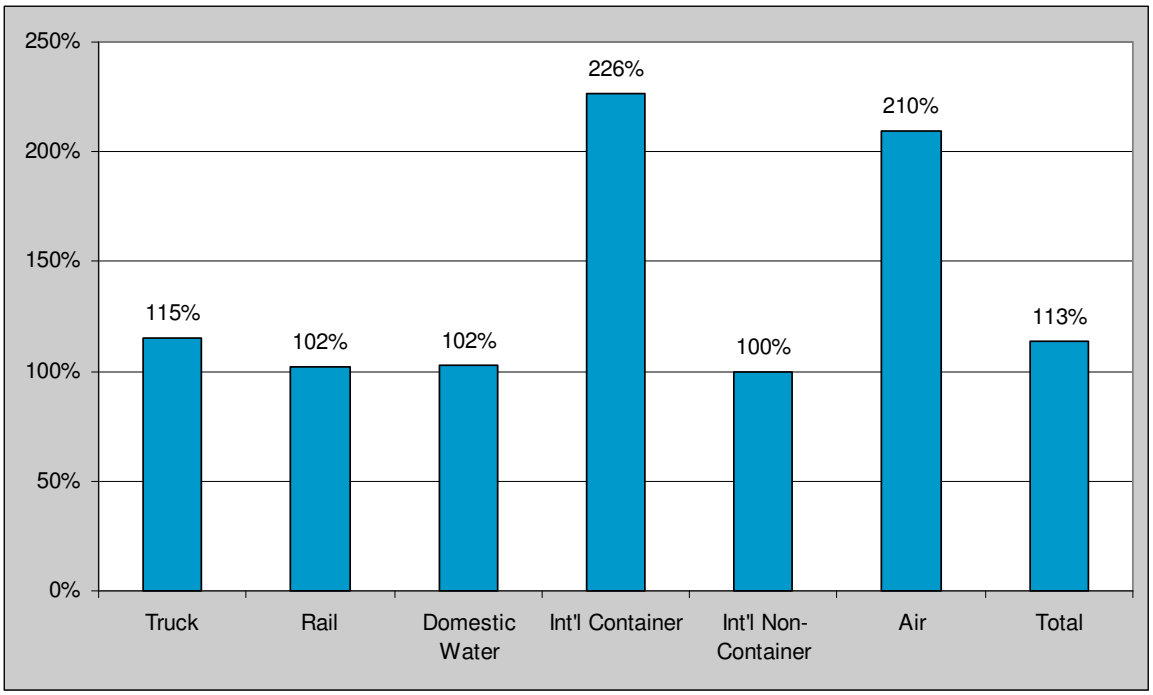


Figure 6 - 17 Virginia Freight Projections by Mode (2035)
(Source: Cambridge Systematics)

A significant portion of the freight tonnage impacting the state rail system is coal from the Appalachian Coalfields in Southwestern Virginia to NS and CSX marine terminals in Hampton Roads for export, and intermodal containerized cargo exports and imports from the deepwater container ports of the Virginia Port Authority and the new APM Terminal in Hampton Roads.

6.4.2.1. Coal Movements

After a period of relatively low coal exports, recent years have seen a rapid growth in coal exports due to increased global demand for coal, used primarily for electricity generation, in the face of soaring petroleum costs. Historic coal movements through Hampton Roads terminals are shown in Figure 6-18. The first quarter of 2008 had a 62% increase over the same period in 2007. The increased demand requires a corresponding increase in the number of freight trains needed to transfer the cargo.

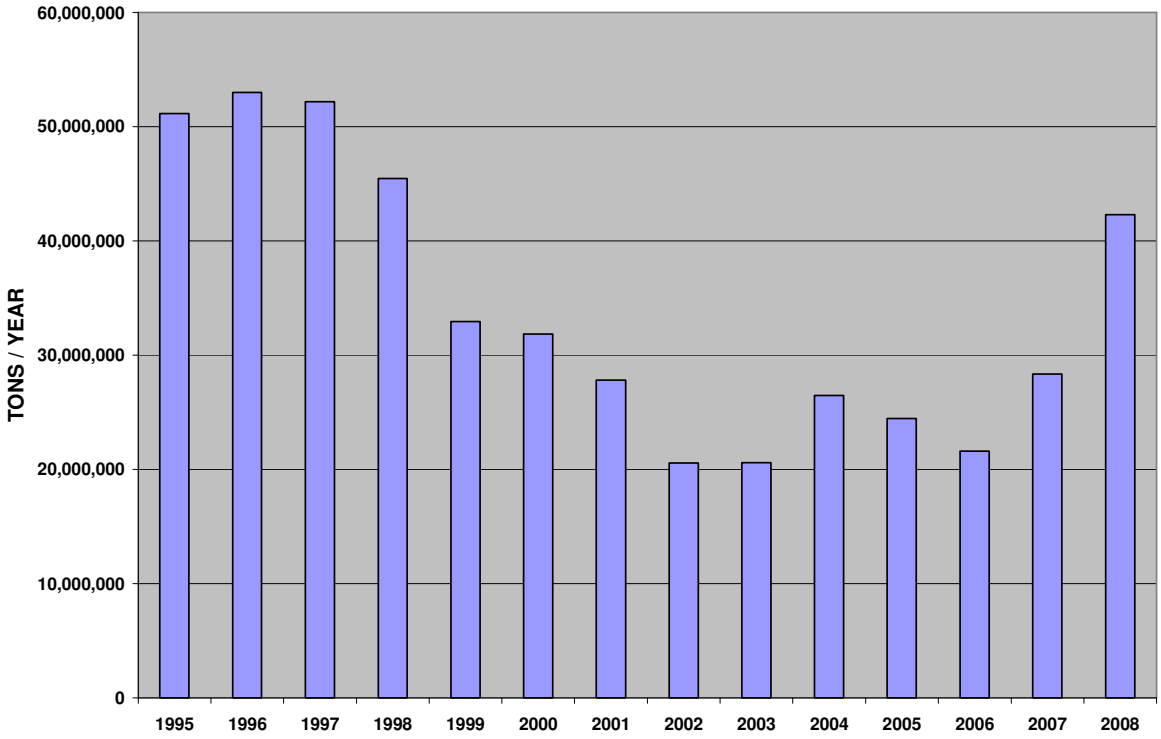


Figure 6 - 18 Coal Shipments 1995 - 2008
(Source: Virginia Maritime Association)

6.4.2.2. Containerized Cargo

Since its introduction in 1956, loading cargo into standardized boxes has revolutionized global shipping and economic development by reducing the cost of transportation between countries of the world. The evolution of transporting containerized cargo into larger and larger specialty containerships has brought economies of scale and the ability of "just-in-time" shipment of goods to companies in the U.S. and around the world.

Early container boxes were twenty feet long, but a variety of standard lengths are now available ranging from 40 feet, 48 feet, and 53 feet. Over 75 percent of the world container market consists of boxes that are 40 feet in length. As a unit of measurement, the world port industry adopted the use of a metric known as the "twenty-foot equivalent unit", or TEU. A typical 40 foot container equals two TEUs. The new generation of containerships can carry 8,000 to 10,000 TEUs per vessel, but are so large that they can only be accommodated by port facilities with deepwater (50-55 foot deep channels) and large specialized container cranes to rapidly load and unload the vessel. Virginia is fortunate with its east access to the Atlantic sea lanes, 50-55 foot channels, and world class terminals at Norfolk International Terminals operated by the Virginia Port Authority, and the recently opened private APM Terminal in Hampton Roads. Global trade routes for Virginia are depicted in Figure 6-19.

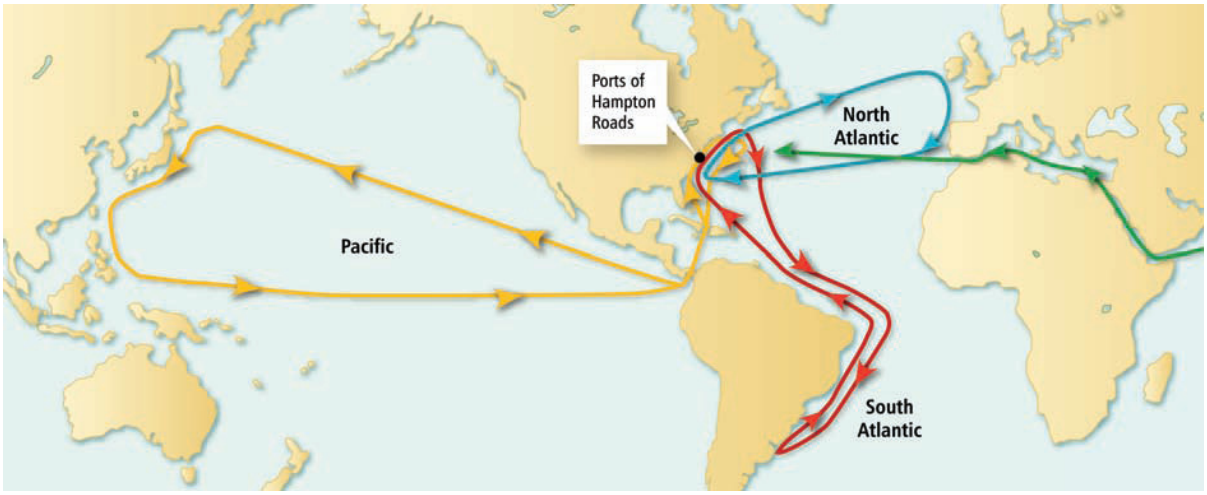


Figure 6 - 19 Global Shipping Routes with the Ports of Hampton Roads
(Source: Virginia Port Authority)

In 2008 the Virginia Port Authority handled 2,083,278 TEU's of containerized cargo. Given the slowed pace of global trade in 2008, this represented a modest 2 percent increase over 2007 volumes. Historically, the Port has grown at an average of 8.0 percent per year, with a projected long term average growth of approximately 4.3 percent per year based on their 2040 master plan. A comparison of origins and destinations of containerized cargo moving to and from the Ports of Hampton Roads is depicted in Figure 6-20 for existing and 2040 cargo projections.

Containers shipped by rail in 2007, equaled 253,590, which represented a 5.1 percent increase in rail usage over 2006. Based on rail improvements at the Port (which will be discussed later), the percentage of containers handled by rail is expected to significantly increase in both the near-term and long-term.

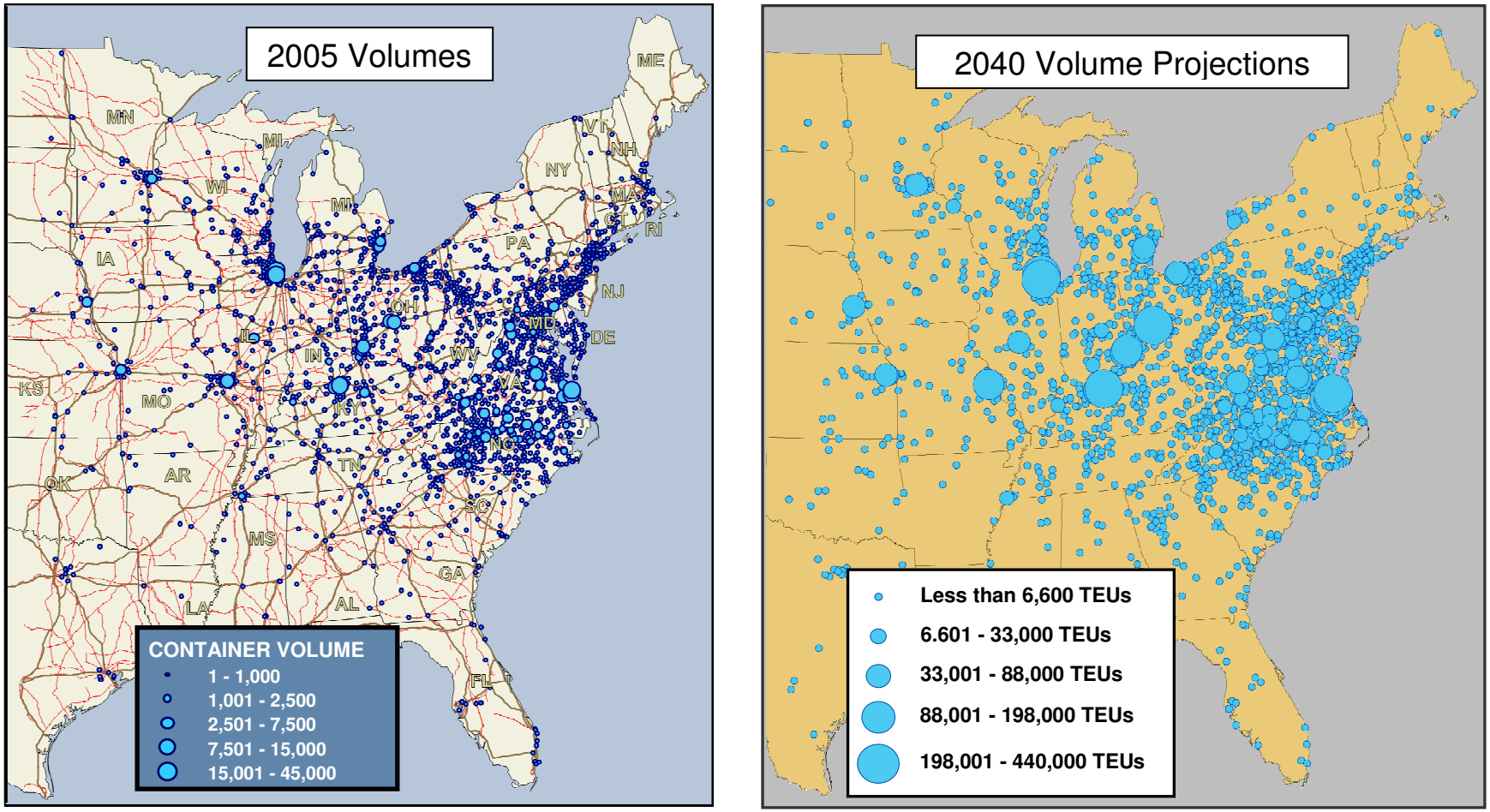


Figure 6 - 20 Container Volume Origins and Destinations for the Ports of Hampton Roads
(Source: Virginia Port Authority)

6.4.3. Economic Development and Port - Rail Modal Interface

In 2009 for the fourth straight year, Forbes.com has ranked Virginia the best place to do business in the nation. Forbes' index is based on a combination of business climate, labor, regulatory environment, economic climate, growth prospects, and quality of life. In this index, North Carolina ranked fifth, Maryland 12th, and Tennessee 23rd in the nation. In 2009, CNBC and CNBC.com ranked Virginia as the best state for business, based on 40 measures of competitiveness, North Carolina ranked 9th, Tennessee 20th, and Maryland 27th in the nation.

Almost 11,000 high-tech companies and thirty Fortune 1,000 firms are located in the state, contributing to Virginia's robust and growing economy. Rail transportation improvements provide direct economic benefits by reducing the costs of transportation, expanding the accessibility of businesses to suppliers, labor, and consumer markets, and attracting new entrepreneurial opportunities to a community or region. An efficient transportation network with rail access to major shipping and travel destinations in Virginia and nationwide is a powerful combination for potential economic development. The Virginia Port Authority estimates that over 60 million square feet of additional distribution center space will be needed over the next 25 years to keep pace with containerized exports and imports in Virginia. The Commonwealth's rail and highway transportation system allows companies to locate throughout the state – often in rural areas where land costs are less expensive and an available workforce is nearby.

Business climate is influenced by a number of factors, including the cost of labor, transportation, and energy; tax and regulatory burdens placed on businesses, and quality of life. Centrally located on the U.S. East Coast, Virginia's integrated transportation system of highways, railroads, airports and seaports ensures that businesses can reach all global markets and get shipments from suppliers more efficiently. Highlights on Virginia's transportation system include:

- Eleven railroads operate on more than 3,400 miles of railway in Virginia, of which more than 3,200 miles are Class I. Two of the nation's largest railroads operate in Virginia: CSX Corporation and Norfolk Southern Corporation, which is headquartered in Norfolk.
- Fourteen commercial airports serve Virginia, including two of the nation's busiest: Washington Dulles International and Ronald Reagan Washington National.
- The Port of Virginia offers world-class shipping facilities and a schedule of approximately 3,000 sailings annually to over 250 ports in 100 foreign countries. The Port, offering one of the largest intermodal networks on the East Coast, handled 2.08 million TEUs (Twenty-Foot Equivalent Units) in 2008, and moved more than 28% of its total business by rail. The new APM Terminal at Portsmouth opened in 2007 and will be a major container terminal on the East Coast.
- The Virginia Inland Port in Front Royal serves as a regional intermodal facility and acts as a collection point for containers from West Virginia, Ohio, Pennsylvania, Northern Virginia and elsewhere (Figure 6-21).
- The Port of Richmond is a multi-modal freight and distribution center located on the James River, adjacent to I-95, offering service to northern Europe, the United Kingdom,

Canada, Iceland, and upon inducement, to the Mediterranean, South America, Mexico, and the Caribbean.

- Virginia's highway system features more than 70,000 miles of interstate, primary and secondary roads, including six major interstate routes: I-95, I-85, I-81, I-77, I-66 and I-64.

Virginia offers six foreign trade zones designed to encourage businesses to participate in international trade by effectively eliminating or reducing customs duties. Also, numerous subzones are provided and additional ones can be designated to enhance the trade capabilities of specific companies.

Virginia's economic future depends on its ability to attract jobs, people, and businesses. The state must compete to draw top companies, grow the job market, and offer an exceptional quality of life that makes people want to call Virginia home. That is why the Commonwealth has identified strategies across all transportation modes to ensure people and goods can move freely throughout the state and continue to feed the economy.

Figure 6 - 21 Economic Development near the Virginia Inland Port
(Source: Virginia Port Authority)

A key component of freight movement in Virginia is the more than 240 port-related distribution centers located throughout the Commonwealth. Figure 6-22 depicts the location of major distribution facilities, and highlights the location these of facilities occur throughout all regions of the Commonwealth – particularly near intermodal facilities, and where rail and highway access are good. Many of these distribution centers are also rail dependent for movement of containerized cargo that provides the goods that are imported or exported from the facility. These distribution centers not only house cargo, but also serve as transfer points for goods moving from the port to intended destinations. Since the mid-1990s, the square footage of these distribution centers has annually increased by almost 13 percent. Demand suggests that an additional 26 million square feet will be necessary by 2014 and could reach 60 million square feet by 2035.

According to the Virginia Port Authority's 2008 Financial Report, the Port's success has generated huge economic benefits to the Commonwealth. Annually, port-related business provides over 343,000 jobs, $13.5 billion in payroll revenues, and $1.2 billion in local tax revenues. Since 1996, port-related warehousing and distribution investment has increased by over $416 million and employed over 12,000 people in the Hampton Roads area alone. The Virginia Inland Port – an intermodal facility located in Front Royal and connected to the marine terminals by daily rail service - has stimulated the attraction of some 24 warehousing and distribution centers providing a total income of $599 million with over 6 million square feet of space together with employee levels of over 7,000 workers, as shown in Figure 6-21. Household names like Wal-Mart, Target, Home Depot, Dollar Tree, Lillian Vernon, and Cost Plus have all set up distribution facilities in the Commonwealth in large measure due to the presence of world class port facilities coupled with good rail and highway access.

In late 2007, APM Terminals, a sister company of Maersk-Sealand shipping line, the largest shipping line in the world, completed Phase I Construction of a new $600 million, 300 acre container terminal in Portsmouth. This marine terminal project is the largest investment in a company owned container terminal in the U.S. and is a huge investment in the Commonwealth's future. This is the first time that a shipping line has invested its own money to construct a marine terminal from the ground up. The terminal is expected to generate $6.4 billion in economic impact to the Commonwealth over its first 15 years of operation.

Virginia's rail system with connections to the Ports of Hampton Roads, the Midwest, and Eastern Seaboard, has positioned many counties and municipalities in the Commonwealth to attract businesses with their associated economic development. Distribution facilities and intermodal rail facilities are particularly well suited to Virginia's transportation system. Larger companies are exploring the concept of large intermodal business parks with a central intermodal yard that could serve numerous manufacturing, warehousing, and distribution centers on the same site. Figure 6-23 represents a joint effort by the Virginia Economic Development Partnership and DRPT to identify transportation corridors near the rail system and other modal links that would be potentially attractive to businesses looking for development opportunities.

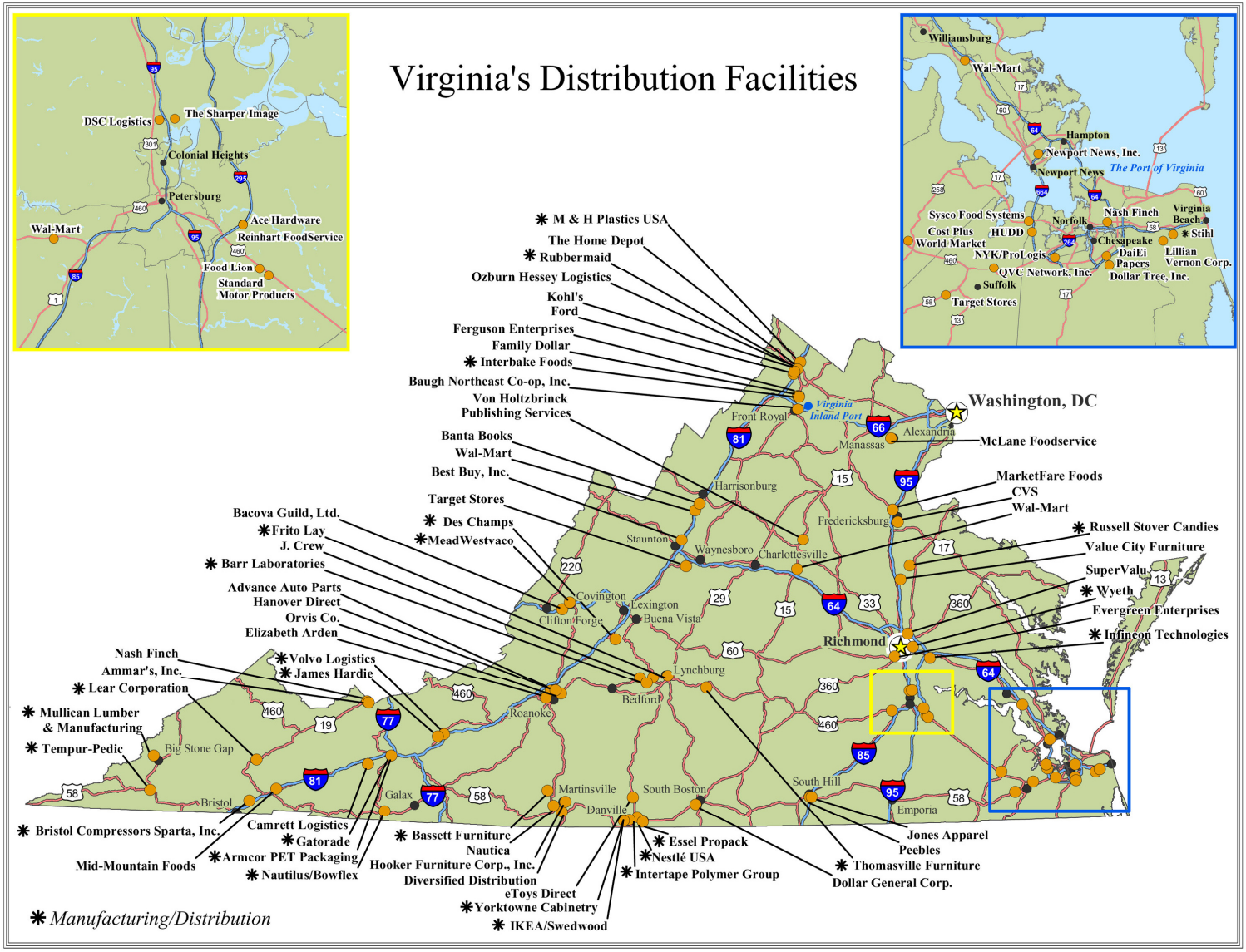


Figure 6 - 22 Major Virginia Distribution Facility Locations
(Source: Virginia Economic Development Partnership)

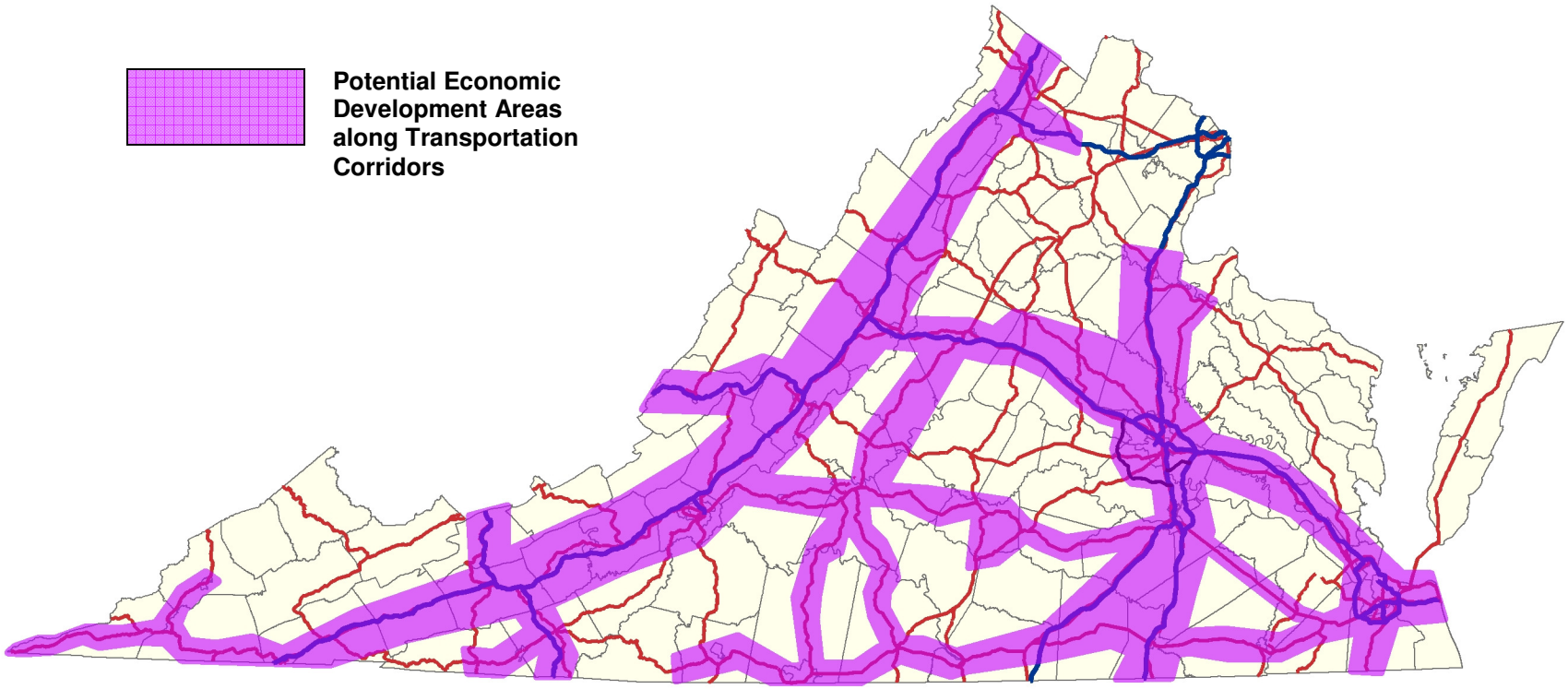


Figure 6 - 23 Potential Economic Development Areas along Transportation Corridors
(Source: Virginia Economic Development Partnership)

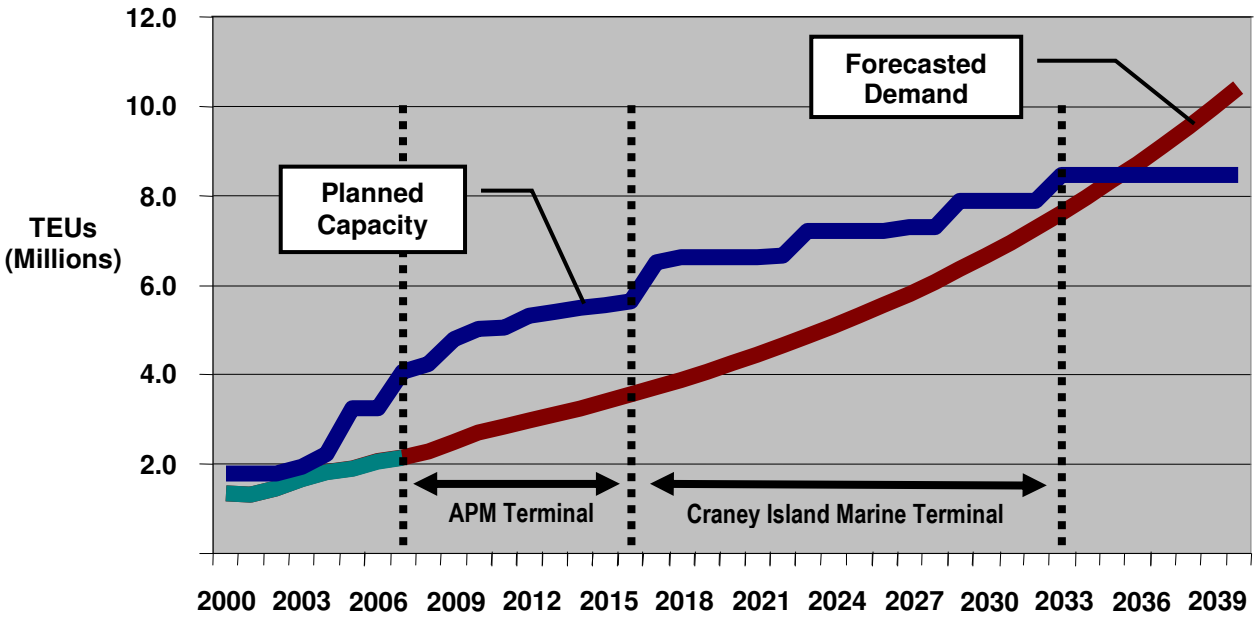


Figure 6 - 24 Increase of Containerized Cargo (TEUs) at Virginia Ports

Over the next twenty years, containerized cargo volume is expected to triple, far exceeding the current capacity of the port network in the U.S. As depicted in Figure 6-24, the Port of Virginia has two unique opportunities to meet this growing demand by adding terminal capacity with the opening of the APM Terminal in 2007 and the proposed development of a new container terminal on the eastward side of Craney Island. VPA has estimated that the growth in container volumes would generate a need to develop 20-60 million square feet of supporting distribution center space in the Commonwealth.

Containerization has radically altered global trade and international production of goods has increasingly shifted to foreign countries where labor costs are lower. The economics of containerization have shaped global supply chains - which have benefitted some countries and left others on the sidelines. Shippers in the U.S. with state-of-the-art ports, deepwater terminals, and good land-transport infrastructure enjoy lower freight costs and lowered shipping times. Efficient ports - such as the Ports of Hampton Roads - with access to large flows of cargo, will receive large ships and frequent service, with trade connections to every part of the world.

Development of the needed rail infrastructure to support both coal exports and the container trade discussed above has been, and should continue to be a high priority for the Commonwealth.

6.5. Passenger Rail

6.5.1. National Trends

Numerous studies at the federal, state, multi-state coalition, Amtrak and industry group levels have been conducted in recent years. The unanimous consensus is that the nation is in critical need of efficient (on-time) and cost-effective intercity and long distance passenger rail service to relieve both highway and airport congestion, and that a strong federal role is needed to assist in the development of such a national rail system (similar to the large federal investments used to develop the interstate highway system and network of major public-use airports throughout the nation). The observations summarized below from the American Association of State Highway Officials (AASHTO) 2002 report entitled *Intercity Passenger Rail Transportation (2002)* are still valid and have grown in importance in the intervening years.

Intercity rail can be divided into two broad categories:

- "Corridor" services, that focus on shorter distance markets (100 to 500 miles) where intercity passenger rail can offer a travel time transportation option to aviation or driving a vehicle.
- "Long-distance" services that focus on markets (usually multi-state) where rail travel times can be very lengthy.

Corridor services dominate intercity passenger rail travel within the United States where about 81 percent of all intercity passenger trips (greater than 100 miles) are less than 500 miles. Corridor trips are generally characterized by:

- Short distances and travel times
- Frequent or regular travel
- Significant business travel market
- Many single-day round trips

Intercity passenger rail offers advantages in serving corridor markets, including:

- Direct service to and from densely developed central cities, which may otherwise involve either travel on congested highways, or long, unreliable access trips to and from airports located in suburban areas – particularly since 9/11 when airport security requirements have greatly increased the overall travel time to travel between cities.
- Providing service to and from communities not served by air.

Rail corridors offer a variety of potential economic benefits, particularly rail corridors that link metropolitan economies that have close economic ties, such as the Hampton Roads, Richmond and Washington, D.C. I-95/I-64 Transportation Corridor. It has been estimated that over 80 percent of the nation's population lives in a metropolitan area. Because of such population density, intercity passenger rail has the potential to provide growth and enhance regional economic competitiveness by:

- Direct Employment Benefits Due to Service Expansion
- Visitor Expenditures and Tourism
- Station or Terminal Development Impacts
- Government Revenues
- Amenity Gains (including needed capacity in congested highway corridors, fewer accidents, and reduced pollution emissions)
- Provide rapid emergency response in the event of a natural disaster requiring the movement of large volumes of people and for relief operations.

The long-distance passenger market is served by trains traveling distances greater than 500 miles, are usually multi-state, and operate with sleeping cars when traveling overnight. Long-distance trains are generally characterized by significantly longer average passenger trip length than those associated with corridor services.

In some cases long-distance trains also provide service in corridor markets; however, their schedule and primary function is oriented around the needs of the endpoint passenger. Such trains are generally scheduled to serve major cities and tourist destinations at attractive times, but most markets are limited to one round trip per day or even less than daily service.

Although long-distance trains capture a relatively small segment of the long-distance passenger market, they do occupy a critical role in the nations overall rail and transportation network by providing:

- National Connectivity: Long-distance trains form most of the national network that links different intercity passenger rail services and markets throughout the United States.
- Essential Services: Many long-distance trains serve rural communities with limited or no significant air or bus service.
- Transportation System Redundancy: Long-distance trains provide an alternative form of travel during periods of severe weather conditions or emergencies that affect other modes of transportation.
- Mail and Express Deliveries: Most Amtrak long-distance routes carry a substantial amount of mail for the U.S. Postal Service, as well as other types of express freight.

6.5.2. Virginia Trends

Virginia passenger rail trends and existing Amtrak and VRE passenger rail services mirror the national trends as noted above, and as noted in the various DRPT and Commonwealth transportation corridor studies previously discussed, identified the need for improved and increased passenger rail services in Virginia (both corridor and long-distance services). Increased passenger corridor services are required in the I-95/I-64 transportation corridor between Hampton Roads, Richmond, and Washington D.C.; in the I-81/Route 29 from Washington D.C, to Lynchburg/Danville as well as Roanoke/Bristol; and passenger rail connections between the megaregions of the Eastern U.S. and Virginia. Passenger rail projects identified to meet these needs include:

- I-95 Corridor - Washington, D.C. to Richmond: Higher speed and then high speed rail service
- I-64 / Rte 460 Corridor - Richmond to Hampton Roads: Higher speed rail on the existing Peninsula Route to Newport News, and then high speed rail service on either the Peninsula Route or a new Southside Route
- I-95 / I-85 Corridor - Richmond to Raleigh: Southeast High Speed Rail Corridor
- I-66 Corridor - VRE commuter rail extension from Manassas to Haymarket; and then westward to the Front Royal / Winchester region.
- Route 29 Corridor - VRE Commuter rail extension from Manassas Bealeton.
- I-95 Corridor - VRE Commuter Rail extension from Fredericksburg to Carmel Church
- I-81 / Route 460 Corridor – TransDominion Express (TDX): a new passenger rail service from Lynchburg to Roanoke to Bristol, Virginia.
- Route 460 / Route 360 Corridor – TransDominion Express (TDX): a new passenger rail service from Roanoke to Lynchburg to Richmond.
- Rte 29 Corridor – Lynchburg to Danville: Higher speed rail service
- Rail Stations / Transit Oriented Developments (TOD) – New passenger rail stations and TODs are anticipated for Cherry Hill, Sudley Manor, Gainesville, Haymarket, Bealeton, Fredericksburg, Carmel Church, Glen Allen / Staples Mill, Newport News, Roanoke, and modifications to Richmond's Main Street Station.

6.6. High Speed Rail

6.6.1. Background

In the late 19th and early 20th centuries, passenger railways were the major form of mass transportation. Railway companies in the U.S. and Europe used streamlined trains from the early 1 930's for high speed services with an average speed of up to 80 mph and top speeds of more than 100 mph. With this service they were able to compete with airline travel at that time.

Following World War II, significant improvements to automobiles and aircraft placed personal transport within the means of most Americans. With severe antitrust restrictions on railroads and with government subsidization of interstate highways and airports, automobile

travel surged and passenger rail travel experienced a significant decline. In Europe and Japan, emphasis was given to rebuilding the railways after WWII, whereas in the U.S., emphasis was given to building a vast national interstate highway system and airports.

Urban mass transport systems in the United States were largely abandoned in favor of road expansion. Compared to Europe and Japan, U.S. passenger railways have been less competitive partly because the federal government has tended to encourage and fund road and air transportation. But today — as population grows and population density increases in major urban corridors, as highway and airline congestion increase and as energy costs increase — rail ridership is increasing across the country.

It is instructive to compare U.S. passenger and freight rail service with other major countries in the world (Figure 6-25). For other developed nations of the world, there is significantly more passenger rail ridership on rail lines than freight. Inversely, for the United States, there is significantly more freight hauled by rail than passenger rail. India has one of the highest uses of passenger rail (251 billion passenger-miles) and among the lowest usage of freight rail (175 billion ton-miles per year). The opposite is true for the U.S., where passenger rail use is low when compared with developed countries (six billion miles per year) but freight rail usage is the highest in the world (1,390 billion ton-miles per year).

High speed rail is primarily a type of passenger rail service that operates significantly faster than the normal speed of rail traffic. In the U.S., the FRA has established a threshold of 90 mph for high speed rail, whereas in Europe the threshold has been set at 124 mph. There are no single standards and lower speeds are often required even on a high speed corridor by local constraints.

The world's first "high speed train" service occurred in Japan, which started in 1964 with trains speeds of approximately 125 mph on the Tokyo–Nagoya– Kyoto–Osaka route. In Europe, the first high speed rail was Italy's 125 mph service in 1969. The only high speed rail service at present in the U.S. is Amtrak's Acela Express, which operates in the Northeast Corridor between Boston, MA, New York City and Washington, DC; it uses tilting trains to achieve speeds of up to 150 mph on existing tracks. While high speed rail is designed mainly for passenger travel, it also offers possibilities for freight service such as mail, overnight deliveries and other types of cargo.

High-speed rail tracks must have high-turn radii, be welded together and be extremely well-supported and anchored to avoid vibrations and other damage. The track itself in most cases is uninterrupted, with roads and other tracks crossing over bridges. Although most existing forms of high speed rail are electrically driven via overhead cables, other forms of propulsion, such as diesel locomotives, may be used – particularly the new generation of environmentally friendly and fuel- efficient diesel-electric locomotives. Magnetic levitation (maglev) trains are considered high speed rail; however, due to their unique track-oriented vehicles and their inability to operate on conventional railroads, they are usually considered a separate type of high speed transport system.

In 2002, the FRA designated 10 high speed corridors under Section 101 0 of the Intermodal Surface Transportation Act of 1991 (ISTEA) and Section 11 03(c) of the Transportation Efficiency Act for the 21st Century (TEA-21) for passenger rail service in high population density and congested intercity sections of the nation. This designation allows a corridor to receive specially targeted funding for highway-rail grade crossing safety improvements and recognizes the corridor as a potential center of high speed rail activity. These designated corridors are depicted in Figure 6-26. They include a high speed rail corridor from Washington, DC to Richmond and the Southeast High Speed Rail Corridor between Richmond and Charlotte, NC.

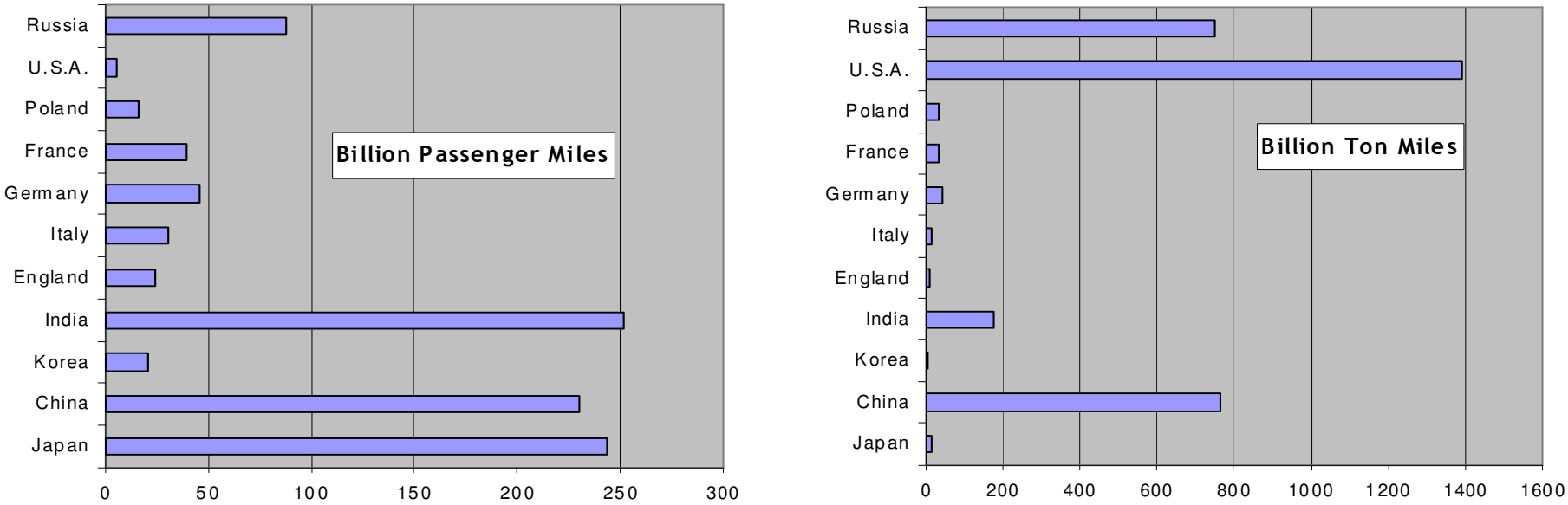


Figure 6 - 25 Country Comparison of Passenger and Freight Rail
(Source: Japanese Railways)

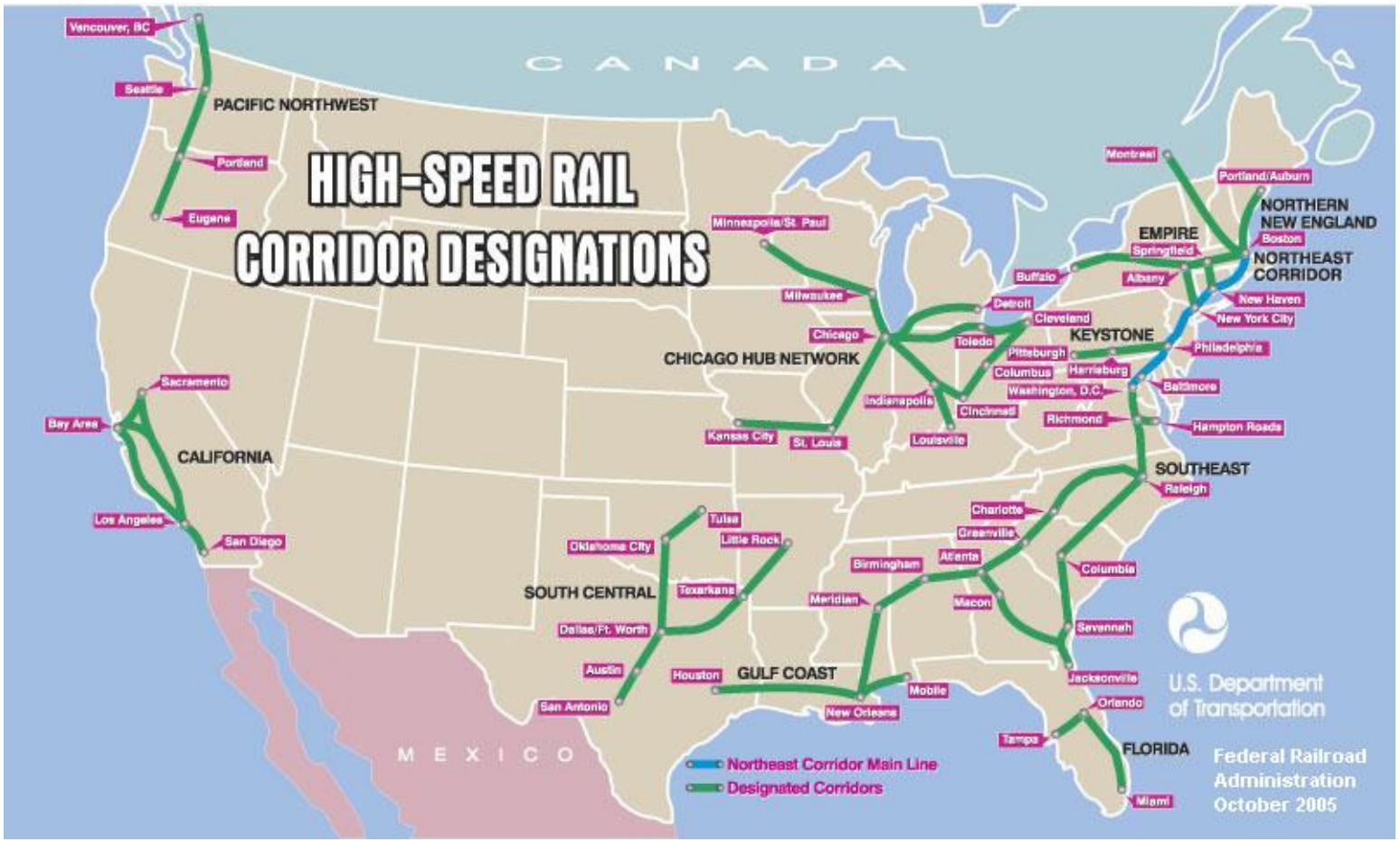


Figure 6 - 26 FRA Designated High Speed Rail Corridors in the U.S.
(Source: Federal Railroad Administration)

According to FRA, a number of states are planning high speed rail systems and making the necessary improvements. The technologies these states are planning to use typically involve upgrades of existing rail lines, rather than entirely new rail lines exclusively devoted to 150 to 200 mph trains, such as operate in Europe; or Japan or 250-300 mph maglev, such as planned in Germany and Japan. Amtrak has also offered to operate "Acela Regional" type service in other state-sponsored corridors if funds are made available for the necessary capital upgrades. In addition to upgrading a number of rail lines, California has prepared a business plan to potentially construct a 200 or 300 mph system.

6.6.2. High-Speed Rail in Virginia

Fast, efficient passenger rail service is important for Virginia. The Commonwealth has initiated studies and preliminary design associated with high speed rail corridors passing through Virginia and has participated in Multi-State Coalitions looking at improving passenger rail services in the mid-Atlantic region. Because of the high capital cost associated with high speed rail systems, the Commonwealth has been following an incremental approach in past years to construct rail improvements that eliminate key rail chokepoints and to increase rail speeds and on-time performance on existing passenger rail corridors – particularly the I-95 and I-81 transportation corridors.

Bordering Virginia from Washington, DC to the north, is Amtrak's 150 mph high speed Northeast Corridor. The Northeast Corridor has recently been extended northward from New York City to Boston, MA. This extension has proven that high speed passenger rail in the United States is a new stakeholder in the growth of America's ground transportation system. Key considerations for high speed rail will be available funding and the development of capacity to support increased freight flows and safe operations.

The I-95 corridor has been identified as a priority corridor for high speed rail. The Southeast High Speed Rail (SEHSR) corridor would extend high speed rail service south from Washington, DC, to Richmond and on to Raleigh and Charlotte, NC. The SEHSR corridor would later expand further south from Charlotte, NC to New Orleans, LA via Atlanta, GA and from Raleigh, NC to Jacksonville, FL and east from Richmond to Hampton Roads. DRPT and the rail division of the North Carolina Department of Transportation have joined forces to support the planning and engineering of projects in Virginia and North Carolina.

The project length is approximately 168 miles, of which 99 miles are in Virginia. The capital cost of implementing the SEHSR will likely be a multi-billion dollar project. The Tier I Environmental Impact Study (EIS) of SEHSR ridership and fare structure indicated that the project would require no subsidies and would pay for itself in terms of annual operating costs. While the Tier I EIS ridership and revenue forecasts are positive, DRPT will take a more conservative approach in estimating ridership and revenue as the project progresses through the planning and engineering process. The next phase of the EIS preparation is currently underway and includes preliminary design of the system. This should be completed by 2011 at which time final design and construction could be initiated.

The American Recovery and Reinvestment Act (ARRA) of 2009 provided funding to the FRA for High-Speed Intercity Passenger Rail (HSIPR) projects. The Commonwealth of Virginia submitted on August 24, 2009 a track 1a application for final design and construction of 11 miles of third track for Arkendale to Powell's Creek. The Commonwealth also submitted on October 2, 2009 a track 2 round 1 application for 19 individual projects that make up the Richmond to Washington DC I-95 Corridor phase I improvements for SEHSR.

In addition to the SEHSR Tier I EIS, DRPT is working to select the corridor's route alignment between Richmond's Main Street Station and Doswell. The actual route selection was not made in the SEHSR Tier I EIS and FRA requires an Environmental Assessment to select one of the two route options to continue through the federal planning process. Analysis to select the high speed rail route between Main St. Station and Doswell, comparing the Eastern route along the Buckingham Branch line and the Western route along the CSX line sections began in February 2008 and was completed in the Spring of 2009. On April 6, 2009, DRPT submitted a Decision Brief: Alternative Considered but Dismissed, Richmond to Doswell, VA. On May 19, 2009, the FRA wrote that "the Buckingham Branch has been shown to fail as a reasonable alternative and the FRA concurs that this alternative may be dismissed from further consideration".

7. UNDERSTANDING AMERICAN RAILROADS

7.1. FRA Requirements

This Chapter of the Virginia Statewide Rail Plan (VSRP) presents information related to Virginia's Transportation Network in historical context. This is not a requirement of 49 CFR § 266.15

7.2. Private Freight Railroads

In addressing the rail needs of the Commonwealth, it is critical to understand that, unlike the nationalized railroads in some other countries, the railroads in the U.S. are private corporations with complete ownership of their rail rights-of-way. These companies are large publicly owned stock companies who have a fiduciary responsibility to conduct their business in such a manner as to maximize fiscal returns for their stockholders. In developing effective public-private partnerships, we must recognize the business models of the railroads in the development of "win-win" situations where the railroads meet their responsibility to minimize risk and maximize profits for their shareholders, while at the same time the public need for effective and efficient rail service is provided.

Railroads operate in a highly competitive environment, particularly in Virginia where NS and CSX are major competitors and serve several of the same major markets. The transparency expected of government agencies in the use of taxpayer dollars on transportation projects is oftentimes a challenge in providing analysis of rail projects where the railroads (rightly so) consider the detailed operations of their companies as privileged information that would adversely impact their competitiveness in the global marketplace if not treated as highly confidential and not available for public use.

NS and CSX operate in many states other than Virginia, and corporate decisions on which rail improvement projects are to be financed within any particular year are based on the best interests of the respective railroads with consideration of the business climate, risk and return on investment. Rail projects that are important to the Commonwealth are in competition with other states requesting NS and CSX to use the railroad's limited financial resources as a partner to implement rail improvement projects in their states. Figure 7-1 depicts the revenues for the five U.S. Class I Railroads, and the revenue generated for moving one ton of freight one mile. The revenue per ton-mile is an important metric to the railroads because many of their operating costs, such as fuel, are driven by the tonnage handled and the miles traveled by their trains.

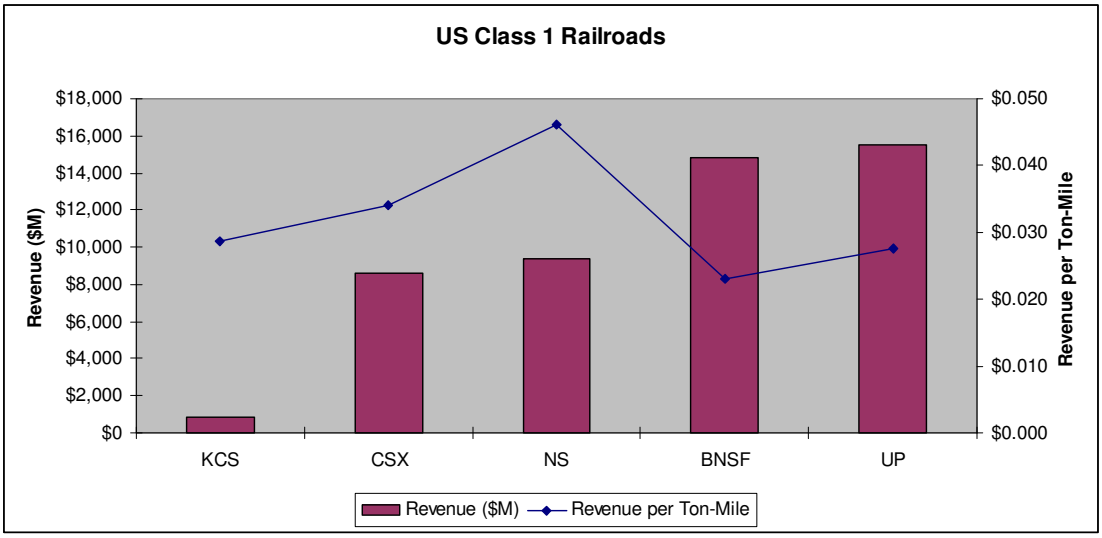


Figure 7 - 1 Railroad Revenue

7.2.1. Norfolk Southern

According to the company's profile, Norfolk Southern Corporation is a Norfolk, Virginia, based company that controls a major freight railroad, Norfolk Southern Railway Company. The railway operates approximately 21,000 route miles in 22 eastern states and the District of Columbia, serves all major eastern ports, and connects with rail partners in the West and Canada, linking customers to markets around the world. Norfolk Southern provides comprehensive logistics services and offers the most extensive intermodal network in the East. In 2008 the principal operating revenue sources were: coal, coke, and iron ore (29 percent); intermodal containers (19 percent; metals and construction (12 percent); chemicals (12 percent); agricultural, consumer, products and government (11 percent); automotive (10 percent); and paper, clay and forest products (9 percent). In 2008, rail revenue ton miles equaled $195 billion; and rail shipments (including containers and trailers) equaled approximately $7.6 million.

7.2.2. CSX Transportation

According to the Company's profile, CSX Corporation, based in Jacksonville, Florida, owns companies providing rail, intermodal and rail-to-truck transload services that are among the nation's leading transportation companies, connecting more than 70 river, ocean and lake ports, as well as more than 200 shortline railroads. Its principal operating company, CSX Transportation Inc., operates one of the largest railroads in the eastern United States with a 21,000-mile rail network linking commercial markets in 23 states, the District of Columbia, and two Canadian provinces. In 2007 the principal operating revenue sources were: merchandise – containers/trailers (58 percent); coal, coke and iron ore (29 percent); automotive (10 percent); and other miscellaneous freight (2 percent).

7.3. Preemptive Rights: The Railroad's Right to Build Facilities

Class I railroads are regulated by the Surface Transportation Board (STB), (the former Interstate Commerce Commission [ICC], not by local or state governments). The ICC Termination Act of 1995, Pub. L. No. 104-88, 109 Stat. 803 (1995) (ICCTA), shields railroad operations and facilities from the application of most state and local laws. This is known as

the Federal preemption provision, and is contained in 49 U.S.C. 10501(b). While railroads can be required to comply with some local health and safety rules, such as fire and electric codes, this provision exempts railroads from local land use and zoning requirements. Preemptive rights, however, do not exempt railroads from certain Federal environmental statutes, such as the Clean Air Act (locomotive emissions), and the Clean Water Act (e.g., wetlands protection).

Projects that utilize federal funds must be in compliance with appropriate NEPA requirements as administered by the Federal Railroad Administration (FRA) and/or the Federal Highway Administration (FHWA). Since most rail improvement projects are within existing rights-of-way with minimal environmental impacts, the majority of rail projects qualify for a Categorical Exclusion in accordance with federal NEPA requirements and regulations. In situations where the anticipated environmental impacts might be moderate, FRA and/or FHWA may require the preparation on an Environmental Assessment; or for large projects with portions of the project outside of existing rail rights-of-way and where the anticipated environmental impacts might be significant an Environmental Impact Statement may be required. The preemptive rights of railroads exempt railroads from local land use and zoning requirements. However, these rights do not exempt the railroads from these environmental requirements.

7.4. Passenger Rail Service on Property Owned by Freight Railroads

The nation's privately-owned freight railroads want passenger rail to succeed, and at present, freight railroads are successful partners with passenger rail operators across the country, including in Virginia.

7.4.1. Amtrak

Amtrak is the only continental U.S. intercity passenger railroad. Approximately 97 percent of the 22,000 miles that Amtrak currently operates over is owned by freight railroads. Many new passenger rail routes are being considered in Virginia and throughout the nation to relieve highway traffic congestion, improve travel mobility, and improve the environment; most of these are on tracks owned by freight railroads. In 1970, for permission to exit the passenger business, freight railroads agreed to a number of Amtrak terms:

- Freight railroads must give Amtrak access to their tracks upon request
- Freight railroads must charge heavily discounted rates for that access
- Freight railroads must give Amtrak trains priority over all other trains

Amtrak pays fees to freight railroads to cover some of the costs associated with Amtrak corridor and long-distance intercity passenger train operations on fright tracks, but according the freight industry, these do not come even close to the full costs incurred by freight railroads for hosting Amtrak trains. However, passenger trains run at higher speeds and rigorous schedules and require certain track standards and design to do so. The freight trains benefit from a higher grade track and can then run their trains at higher speeds and even better schedules. Tighter schedules could be equivalent to those necessary in order to operate intermodal freight movement

7.4.2. Non-Amtrak Passenger Service

Non-Amtrak Passenger service includes all passenger services operating outside of the Amtrak legislation providing for intercity passenger rail. Commuter railroads such as VRE typically fit into this classification. It is some times confusing when a commuter railroad like VRE or the Massachusetts Bay Transportation Authority contracts with Amtrak to provide operating services for the commuter railroad to think that it is an Amtrak passenger operation, when in actuality the service is not covered by the Amtrak Intercity legislation.

The position of the freight industry with respect to non-Amtrak passenger rail service has been clear and consistent:

- Passenger rail service must be complimentary to, not in conflict with, freight rail development
- Freight railroads should be fully compensated for the use of their property by passenger trains
- Absent voluntary negotiated agreements, freight railroads should not be forced to give passenger rail operators access to their property
- Freight railroads should not be expected to subsidize passenger rail
- Freight railroads do not want any liability associated with passenger train service or at a minimum some enforceable limits on freight rail liability. Without such limits set at a policy level by the federal government this will remain a major obstacle in the growth of passenger rail service.

Based on Association of American Railroad data, the issue of full compensation has become more important in recent years as rail capacity has become more constrained. When Amtrak was created in 1970 there were few commuter trains providing corridor services. Since then, average freight rail density has increased 379 percent, with the result that available train “slots” on major rail corridors have become very scarce. If passenger trains fill these slots at below-market prices, the result is a major subsidy from freight to passenger rail. This also limits the ability of freight railroads to serve those areas, because slots are not available to freight trains.

The AAR reports that in 2007 the Class I railroads operating in the US had an average Revenue per Ton Mile of $0.0299, and that the average Tons per Train was 3,163. It can be calculated that, on average, a US Class I railroad makes approximately $94.57 per Train-Mile. VRE, as an example, pays the host freight railroad a $17.47 per Train-Mile access fee under its operating agreements. The host railroad must honor the passenger slot that the passenger rail agency has contracted for, and delay or not operate its own freight trains that generate five times the revenue of a passenger train. This situation is much more of an issue on corridors where intermodal trains and other high priority scheduled freight trains are operated since the railroads charge shippers more for the expedited service.

The current VRE operating agreement requires the replacement of track capacity foregone by CSX in 1992 for the initiation of commuter services. This requirement must be fulfilled for additional train capacity necessary to operate increased commuter rail service in the corridor.

7.5. Indemnification

It is standard practice for railroads to request indemnification and hold harmless contractual language in its access agreements with public entities related accidents or incidents that occur as a result of allowing passenger rail operations on freight rail. The request to be

indemnified and held harmless is often broad and includes coverage for events that are attributable to gross negligence or unsafe practices by the host railroad. This language is problematic for special transportation districts but can be a “deal breaker” for state governments who are unwilling to waive sovereign immunity. Typically, states require activity by its Legislature before allowing a state agency to enter into an agreement that holds a private company harmless form liability for damages, loss, or injuries caused by the sole or joint negligence of the private company.

The cost for insurance for public entities that enter into these agreements is typically very expensive, especially in the early years of operation given that there is insufficient accident information for an insurance carrier to assess risk. VRE for example, has paid $2.5 million per year for $250 million of general liability coverage, plus $600,000 per year for special coverage related to terrorist acts. A key benefit for investing in intercity passenger rail service with Amtrak is based on its national operations. For three decades, Amtrak has been paying liability claims associated with passenger rail accidents, regardless of fault, as a condition for using the freight lines' tracks.

8. EXISTING RAIL FUNDING PROGRAMS IN VIRGINIA

8.1. FRA Requirements

This chapter of the Virginia State Rail Plan (VSRP) presents information related to Virginia's three freight rail funding programs and funding mechanisms for Passenger Rail as required by 49 CFR § 266.15 (c)(1).

This chapter of the VSRP also presents information in sections 8.3, 8.4, and 8.6 required by 49 CFR § 266.15 (c)(4) , 49 CFR § 266.15 (c)(5), 49 CFR § 266.15 (c)(6), and 49 CFR § 266.15 (c)(7).

8.2. Overview

DRPT administers approximately $200 million annually in financial support for capital and operating and maintenance costs of public transportation services across the Commonwealth. Federal and state aid is provided to supplement revenues collected from fares and local funds provided in support of public transportation operations such as the following:

- Financial support for projects that demonstrate new public transportation services or techniques in service delivery.
- Financial support for training for drivers, mechanics and professionals working for Virginia's public transportation systems.
- Financial support for the operations of Commuter Assistance Agencies and the delivery of services to businesses and the general public.
- Federal and state financial support for the procurement of vans and small buses used for the transport of elderly and disabled clients by private non-profit agencies.
- Financial assistance to business and industry to defray the costs of rail development on industrial sites and reduce truck traffic.
- Financial assistance to shortline railroads to defray the costs of capital infrastructure projects that assist in the preservation of rail service to areas of the Commonwealth that otherwise would not have this service.

DRPT's funding comes from transportation trust funds (52 percent), federal funds (21 percent), and local funds (27 percent). The majority of the transportation trust funds ($186.0 million) come from the Mass Transit Trust Fund which represents DRPT's 14.7 percent allocation of the 1986 Special Session Revenue (Transportation Trust Fund). Commonwealth of Virginia Transportation Capital Projects Revenue Bonds (Code of Virginia § 33.1-23.4:01) provides $60 million annually to the Mass Transit Capital Fund and $12.9 million annually to DRPT rail programs. An additional $26.6 million represents the state portion of vehicle rental taxes collected in the Transportation Trust Fund that is used for the Rail Enhancement Fund, and $15.9 million is funded through the Highway Construction Fund or Highway Maintenance and Operating Fund.

Existing funding for rail development projects in the Commonwealth are provided through: the Code of Virginia § 33.1-221.1:1.1 – which established the Rail Enhancement Fund; the Virginia Transportation Act of 2000 was created by HB 608 in the 2000 General Assembly, which, among other actions, established the Priority Transportation Fund in §33.1-23.03:8; Code of Virginia § 33.1-23.4:01 - allocation of proceeds of Commonwealth of Virginia Transportation; and, Capital Projects Revenue Bonds discussed below.

The vast majority of annual funds are allocated to mass transit projects and operations (approximately 84 percent) with the remaining funds allocated to a variety of rail improvement projects (the subject of this Statewide Rail Plan). The typical annual expenses noted above do not include special appropriations that have been made by the Commonwealth for rail improvement projects.

The 2007 General Assembly session has provided record increases for statewide and regional transit funds beginning in FY09 that will benefit all of DRPT's programs. There will be approximately $103 million in new statewide transit funds, representing a 42 percent increase in transit operating funds. HB3202 also dedicates a minimum of 20 percent of bond proceeds to major transit capital projects statewide. The Appropriations Act calls for an additional $70 million in one-time transit funding for FY08, including $19 million for new statewide transit capital, $20 million for Metro railcars, $15 million for VRE railcars, $10 million for Norfolk Light Rail Transit and $6 million for hybrid electric buses in Norfolk.

The bond package includes a minimum of 4.3 percent of available funds specifically for rail transportation. This equates to approximately $4.3 million in FY08 and then $12.9 million each year afterward to be administered through the Rail Enhancement Fund and the Rail Preservation Program for rail capital projects. In addition, the Appropriations Act includes $65 million to support rail initiatives in the I-95 and I-81 corridors.

8.3. Rail Enhancement Fund

The Rail Enhancement Fund (REF) provides for the planning and implementation of passenger and freight rail projects in the Commonwealth. This fund is the primary source for the implementation of large capital projects for rail improvements.

Project funding is provided through the Code of Virginia § 33.1-221.1:1.1 – which established the Rail Enhancement Fund; the Virginia Transportation Act of 2000 was created by HB 608 in the 2000 General Assembly, which, among other actions, established the Priority Transportation Fund in §33.1-23.03:8; and Code of Virginia § 33.1-23.4:01 - allocation of proceeds of Commonwealth of Virginia Transportation and Capital Projects Revenue Bonds.

The Rail Enhancement Fund was established in 2005. The fund provides dedicated state funding for acquiring, leasing and/or improving railways or railroad equipment, rolling stock, rights of way or facilities for freight and/or passenger rail transportation purposes whenever the Commonwealth Transportation Board determines that it is for the good of a region of the Commonwealth or the Commonwealth as a whole. The source of revenues for the Rail Enhancement fund is a 3 percent vehicle rental tax (which is approximately $23.5 million in FY08). In addition, state funds are provided to freight and passenger rail operators in accordance with VTA 2000 Appropriations and Capital Projects Revenue Bonds.

8.3.1. Program Overview

Under § 33.1-221.1:1.1 of the Code of Virginia, the General Assembly declared it to be in the public interest that the preservation and development of railway transportation facilities are important elements of a balanced transportation system in the Commonwealth. It further declared “it to be in the public interest that the retention, maintenance, improvement and development of the railways are essential to the Commonwealth’s continued economic growth, vitality, and competitiveness in national and world markets. The new law created in the state treasury a special non-reverting fund to be known as the Rail Enhancement Fund which is considered a special fund within the Transportation Trust Funds.

The Code states that the Director of the Department of Rail and Public Transportation (DRPT) “shall administer and expend or commit, subject to the approval of the Commonwealth Transportation Board, the Fund for acquiring, leasing, and/or improving railways or railroad equipment, rolling stock, rights-of-way or facilities, or assisting other appropriate entities to acquire, lease, or improve railways or railroad equipment, rolling stock, rights-of-way or facilities, for freight and/or passenger rail transportation purposes whenever the Board shall have determined that such acquisition, lease, and/or improvement is for the common good of a region of the Commonwealth or the Commonwealth as a whole.”

The Code further states that “Projects undertaken pursuant to this section shall be limited to those the Commonwealth Transportation Board shall have determined will result in public benefits to the Commonwealth or to a region of the Commonwealth that are equal to or greater than the investment of funds under this section. Such projects shall include a minimum of 30 percent cash or in-kind matching contribution from a private source, which may include a railroad, a regional authority, or a local government source, or, a combination of such sources.”

A Rail Advisory Board (RAB) consisting of nine members, appointed by the Governor, was established. The RAB, in consultation with the Director of DRPT, develops recommendations to be presented to the Commonwealth Transportation Board (CTB) regarding allocations of funds from the Rail Enhancement Fund.

The Director of DRPT administers and, subject to CTB approval, expends or commits funds from the Rail Enhancement Fund for the purpose of acquiring, leasing, and/or improving railways or railroad equipment, rolling stock, rights-of-way or facilities for freight and/or passenger rail transportation purposes. The Director of DRPT obtains the recommendation of the RAB before submitting a project involving the use of Rail Enhancement Funds to the CTB.

All projects receiving funds from the Rail Enhancement Fund must include a minimum of 30 percent cash or in-kind matching contribution from a private source, which may include a railroad, a regional authority, a local government source, or a combination of such sources. The remaining amount, up to a 70 percent maximum, will be the Commonwealth's grant to the project.

8.3.1.1. Program Policy Goals

The Program Policy Goals summarized below have been established for the Rail Enhancement Fund.

- Projects will provide an additional or accelerated investment in Virginia rail projects, which are determined to have a substantial public benefit equal to or greater than the public investment. The Rail Enhancement Fund provides funding for the development and improvement of rail infrastructure in Virginia and also for the acquisition of rolling stock, signal systems and equipment. The Rail Enhancement Fund will be used to fund projects and proposals found to have a public benefit that is equal to or greater than the public investment, and which are not likely to be completed in a timely manner without use of Rail Enhancement Funds.
- Projects will address the needs identified in the applicable state, regional and/or local plans, developed in consultation with public and private partners. Projects will generally address the needs identified in the applicable state, regional and/or local plans to the extent such plans exist, including VTrans2025, the Virginia State Rail Plan and those goals adopted by Governor Warner's *Commission on Rail Enhancement for the 21st Century*. In addition, projects must be in conformance to the Statewide Rail Plan developed by DRPT and adopted by the Commonwealth.
- Projects will encourage competition and economic development by promoting, or not precluding, access by more than one rail operator and whenever possible joint access by freight and passenger operators to optimize the Commonwealth's investment. Projects should maximize rail usage and promote competition whenever feasible. Projects in corridors that are utilized for both freight and passenger service must demonstrate that both types of service will benefit from the improvement. Where feasible, rail infrastructure related projects should not be designed to preclude access by more than one operator.
- Rail Enhancement Fund projects will be selected that support a multi-year strategic program of projects that leads to an integrated six-year rail (passenger/freight) improvement program. The Director of DRPT, in consultation with and with the assistance of the Rail Advisory Board, will develop recommendations for an annual program of projects that will be incorporated into the Commonwealth's Six-Year

Improvement Plan. In addition to considering applications, the Director of DRPT and the Rail Advisory Board may also recommend specific projects for consideration. Individual projects will be viewed in terms of how they benefit the overall rail network in Virginia.

- The Program will limit long term Commonwealth funding liability through the development of achievable project schedules and budgets. Consideration will be given to funding major projects over a multi-year period. Applications for projects will include detailed cost, schedule and budget information. For construction projects, applications that include preliminary engineering completed to 30 percent will receive more positive weight and consideration during the review process.
- Where feasible, projects will optimize public benefits by leveraging funds from sources other than the Rail Enhancement Fund. The law creating the Rail Enhancement Fund requires a minimum of a 30 percent cash or in-kind matching contribution from a private source, which may include a railroad, a regional authority, a local government source, or a combination of such sources. Projects are likely to receive more favorable consideration if a higher match ratio is proposed. Projects that are part of a larger package of improvements funded from other sources are encouraged and are likely to receive more favorable consideration. Additional investments above the minimum match requirement broaden the sharing of the risk and improve the chances of project success.
- Projects will protect the Commonwealth's public interest in private facilities. The Commonwealth will ensure that any improvements made with public funds remain available for the proposed public use for the useful life of the project. Contractual agreements will be written to protect the Commonwealth's public interest in the private facilities and to require compensation for the residual value of the investment if the public use ceases within the period of useful life.
- Projects will contribute to the effectiveness of the entire transportation system. Projects will promote congestion relief, encourage economic development, enhance the competitiveness of Virginia ports, airports, and multi-modal facilities, and promote safety, health and environmental benefits, and improve mobility or any combination of these objectives.

The following organizations (or any combination) are eligible to apply for Rail Enhancement funding:

- Commuter and Intercity Passenger Rail Operators
- Freight Rail Operators
- Private Businesses or Industries that currently utilize rail or are planning to develop railway facilities in the future
- Regional Authorities
- Local Governments
- Non-profit Organizations

Eligible expenses may include the following:

- Preliminary service, engineering, or feasibility study
- Final engineering
- Permitting
- Acquisition, lease, or improvement of rights of way or facilities
- Environmental mitigation directly related to the project
- Site preparation including grading, drainage and relocation of utilities
- Acquisition, lease, or improvement of railways, including signal and communications equipment
- Acquisition, lease, or improvement of railroad equipment
- Acquisition, lease, or improvement of rolling stock
- Public involvement expenses, as agreed

The Applicant/Designated Grantee shall be contractually committed to providing the Commonwealth with a contingent interest in that portion of rail improvement and facilities constructed or improved with the use of rail enhancement funds for a 15-year period of time. Said portion shall be defined by the agreement. Rail tracks and facilities shall be made available for use by all common carriers using the railway system to which they connect. A certification issued by the landowner or using business stating that they will provide for the continuous maintenance and assume the liability of the tracks and facilities.

The industry shall certify that it will provide the public benefits indicated in the project application (on-time performance for passenger services, number of new containers carried on the system to divert freight from trucks to rail, etc.)

The grant recipient will be required to repay the Department its contribution to the cost of the construction and materials, less depreciation if the rail improvements are abandoned, relocated or sold (without a grant assignment).

The grantee will also be required to repay the Department its contribution to the cost of the rail improvements if the annual public benefits stated in the application for the 15-year time period are not met.

8.3.2. Description of Benefit Cost Analysis

DRPT has developed a proprietary and unique benefit cost analysis based on MS Excel spreadsheets to determine the public benefits associated with applications for rail enhancement funds (CFR Sec. 266.15 FRA Requirements for State Rail Plan – [c.5] methodology for determining ratio of benefits to costs). Since it's inception in 2006, the model has been refined by DRPT and consultants to the Department based on the use of the model on a wide variety of specific rail improvement projects. Fund applications for both freight and passenger projects are reviewed by DRPT to determine eligibility in accordance with the program policy goals. Eligible proposals are then assessed using the Department's public benefit/cost analysis (BCA). The Director determines the time frame for analysis (usually 15 years) though applicants may also suggest an appropriate time frame.

The BCA includes measures of public benefits some of which are particular to either passenger or freight projects. Examples of BCA measures include: reductions in externalities (associated with public investments, pollution, and congestion); public benefits from increased/retained employment; reductions in transportation costs; time savings; promotion of economic development; and reductions in accident costs. Projects that do not achieve a minimum benefit to cost ratio of 1.0 are not considered for funding, or in some circumstances the applicants matching funds are increased and the Commonwealth's funding are decreased until a B/C ratio of at least 1.0 is achieved.

The baseline for all performance measures and benefits are existing conditions for both passenger and freight movements. These existing conditions must be certified by the applicants applying for funding grants. The benefits used in the benefit cost analysis are only the new (additional) benefits that would be generated by the proposed rail improvement project itself above the current baseline conditions.

A matrix of the BCA model components used to estimate direct project public benefits over a 15 year project life is depicted in Figure 8-1. The model also computes a variety of important additional public benefits as depicted in Figure 8-2.

BCA model parameters are defined by project descriptions provided by fund applicants using standard forms included in DRPT funding application. The application forms include a detailed project description, as well as performance data provided by the applicant over a 15-year period that would result directly from the proposed project improvements (such as time savings, truck diversion by higher container usage by rail, ridership increases, on-time performance measures, distances traveled, etc.). In cases where the application only requested funding for a specific phase of a project (for example environmental and preliminary design), benefits are not based on the funding amount requested but are computed using the estimated full project cost (design plus construction) to analyze the transpiration benefits at the completion of the full project.

	Type of Benefit			
Beneficiary	**Financial**	**Safety**	**Time Savings**	**Environmental**
Remaining Highway users			Congestion Relief (Passenger & Freight)	
New passengers	Reduced Transportation Costs	Reduced Crash and Accident Cost (Passengers)		
Existing passengers			Travel Time Savings (Passengers)	
General public	Shipping Cost Reduction (Freight)	Safety Improvements (Freight)		Environmental Improvements (Passenger & Freight)
Public sector	Pavement Maint. Cost Savings (Passenger & Freight) Avoided Highway Construction Cost (Passenger & Freight)			
Private sector		Reduced Crash and Accident Cost (Freight)	Reduced Inventory Costs (Freight)	

Figure 8 - 1 Summary of BCA Model Components

Category	Basis of Measure
Reduction in Highway Use	Number of Vehicles; Number of Trucks
Added Capacity to Corridor	Passengers; Freight Cars
Fuel Savings	Due to shift in mode; Due to infrastructure change
Increased Competition	Reduction in shipping rates from trucks to rail
Employment	Due to new construction, new rail service; retained employees
Reduced Emissions	Tonnage of CO_2

Figure 8 - 2 Summary of Additional Benefits

8.4. Rail Preservation Fund

The Rail Preservation Fund (RPF) provides funding for the preservation and continuation of existing rail service to increase productivity, safety and efficiency of shortline railway transportation logistics in Virginia. Through projects funded by the Rail Preservation Program, a transportation alternative is provided to business and industry in areas of the Commonwealth that otherwise would not have these alternatives if the program did not exist. This program has become a key component of the Commonwealths' initiative to attract and maintain business in Virginia.

Project funding is provided through the Code of Virginia § 33.1-221.1:1.2 – which established the Shortline Railway Preservation and Development Fund; and the Code of Virginia §33.1-23.4:01 - Allocation of proceeds of Commonwealth of Virginia Transportation and Capital Projects Revenue Bonds. Not excluding special allocations, the rail preservation fund is allocated $3 million annually for shortline rail improvement projects.

Business and industry in the Commonwealth will continue to expand or locate their services to meet the increasing demand for industrial and commercial development. The Rail Preservation Program assists with the continuation of rail services to remote areas that otherwise would not have rail service. Funding to the Commonwealth Railway shortline has continued rail service to the West Norfolk area of Portsmouth and resulted in providing rail service to the new APM Terminal which was constructed on the Commonwealth Railway rail line. The APM container terminal development is the single largest private investment in Virginia history. APM, in part, chose Virginia for its dual (CSX & NS) rail access opportunities offered by connection to a shortline railroad. As all Class I railroads work to maximize the assets of the company, more shortline railroads will be created and rail lines will be taken out of service. The increased demand of the stockholders of the larger railroad companies will lead to an increase in shortline spin-offs and loss of service along existing rail lines.

8.4.1. Program Overview

It is the policy of the Commonwealth Transportation Board (CTB) to consider railways and rail corridors as important elements of the Statewide Transportation System. The CTB supports the use of funds for projects deemed important elements of the Statewide Transportation System. Such consideration includes support provided to appropriate entities in the acquisition, lease, or improvement of railways, and equipment, and the purchase of out-of-service or abandoned railway rights-of-way for transportation purposes that the CTB determines are for the common good of the Commonwealth or a region of the Commonwealth.

The Department of Rail and Public Transportation Director shall administer and expend or commit, subject to the approval of the CTB, such funds as may be set forth in the Appropriations Act for this purpose. Such funds may be expended or provided in the form of grants or loans to others to improve railways, equipment, or related facilities specific to rail operations on public or private property and to acquire or lease railway properties for transportation purposes. Any properties purchased can be leased to others for continuation of rail service. No funds shall be used for general railroad operating expenses. Costs incurred for the administration of approved projects shall be an eligible expense under this policy. Funds may be spent directly by the Director or by reimbursement of expenditures by the local entities, private or public.

In allocating funds for improvement, the CTB shall consider the project cost in relation to the prospective use, line capacity, and the economic and public benefits. In allocating funds for purchase, the CTB shall consider the potential for future public uses of the properties. The CTB shall adopt procedures for the allocation and distribution of the funds as may be provided, including provisions for safeguarding the Commonwealth's interest in all projects.

DRPT may develop projects for the consideration of the CTB or receive applications from others for such projects. Each application shall be accompanied by a resolution from the appropriate local government or Transportation District Commission supporting that such funds be allocated to the proposed project. Each application shall be considered on the basis of its merits.

As a general guide, no more than 50 percent of the funds shall be recommended for any single applicant in any fiscal year unless it is determined that there are not a sufficient number of applicants and applications to use the available funds, or a project has been determined to be of major significance to the Commonwealth. Final allocations shall be determined by the CTB.

In deciding whether to allocate funds for a project, the CTB shall consider the potential for future public uses of the property and/or the cost thereof in relation to the prospective rail use, and other economic and public benefits, and the common good of the Commonwealth or a region of the Commonwealth. Freight improvement projects must have a benefit-cost analysis of greater than 1.0, except in the case of a safety project which is not eligible under another safety program. Passenger projects will be based on service needed and capacity constraints. Projects may be considered for purchase if they have a potential for rail or other future transportation uses.

Funds may be provided to local governments, authorities, agencies, Transportation District Commissions or non-public sector entities for rail projects funded under the program at a maximum 70 percent state and minimum 30 percent local match. Funds provided for Class I rail operators for freight purposes may be in the form of loans to be repaid over a period of years at an interest rate to be determined by the DRPT Director and approved by the CTB. No funds may be used for general railroad operating expenses. These funds may also be used as a portion of the non-federal share for the utilization of federal funds by public or private parties. Funds may also be used to match other non-state grants obtained by the applicant. These funds will provide no more than 70 percent of the local share of the Federal matching requirement. Additionally, funds may be provided for administration of a project on a 70-30 match basis with a maximum administration reimbursement of 5 percent of the total projects cost or $50,000 per year, whichever is less. Also, funds may be provided to assist in obtaining a qualified assessment and engineering of the necessary track structure and bridge improvement needs.

Funds may be granted or loaned to the current or prospective owners of a Shortline railroad to purchase or refinance operating railway properties. The maximum amount of any loan may be limited by the net liquidation value. The owners may repay part of the loan over 20 years at an interest rate to be determined by the Director, with approval by the CTB. The Commonwealth shall retain an interest in the property with an option to buy the balance if the rail operation is not continued as originally intended.

The actual amounts loaned, their repayments, schedules, loan provisions, and interest charged shall be established by the Director and approved by the CTB. The loan amounts shall not exceed the funds made available for any railway by the CTB. The Commonwealth

shall retain a contingent interest in any project for which loans are provided until such time as the Commonwealth has been reimbursed.

The Commonwealth may purchase lines for Shortline rail service or other transportation purposes. Said lines could be leased to others for rail transportation purposes at a rate to be determined and recommended by the Director, with approval by the CTB. Such lines purchased shall not be subject to a time limitation for retention.

The Commonwealth will retain an interest in materials installed in tracks, and facilities reconstructed or improved with grant funds from the Commonwealth until the Commonwealth's interest is repaid or the useful life as determined by the Director has expired (usually set at 15 years). The useful life determination shall have the approval of the CTB.

The recipient of funding shall be contractually committed to the perpetual maintenance of such tracks and facilities, and/or property and to the payment of any costs related to the future relocation or removal of such tracks and facilities. Where applicable, the recipients or their subcontractors shall also be contractually committed to provide for the continued operation of rail service as a common carrier and to assume all liability in connection with the implementation and operation of the project. The Commonwealth shall be advised of any change in the carrier status.

The Commonwealth may allow the recipient of funds to purchase the Commonwealth's interest in a railway, equipment, and facilities at a value determined by the Director with the approval of the CTB. In the event the recipient of funds desires to sell property or interest in railway equipment and facilities which have been acquired, reconstructed, or improved under this program, said sale shall be subject to the Commonwealth's vested interest and written approval.

The Commonwealth does not consider any rail with a weight of less than 100 lbs./yd to be an acceptable size for use in the track structure. Rail Preservation monies will not be utilized to pay for (or pay to have installed) any rail less than the minimum accepted size. The use of 112 lbs./yd rail or other low production rail is discouraged because of the scarcity of tie plates and joint bars.

DRPT's goal is to assist in bringing all Shortlines to a Class II Track Safety Standard operation as prescribed in the Track Safety Standards publication as part of the Federal Railroad Administration's Title 49 Part 213 regulations. The achievement of this plan will depend on the availability of funding. Once reached, the track shall be maintained at this level. This requirement may be waived in the case of an emergency. Additionally, applications for funds must provide a plan that outlines bringing their track structure and bridges to a minimum Class II Track Safety Standards and, if necessary, structures to a load limit of 286,000 pounds. These plans must be submitted at time of application. All applicants submitting request for funds starting in FY 2000 with rail lines below Class I Track Safety Standards must submit a plan to bring their rail lines to Class I Track Safety Standards within a reasonable amount of time.

8.5. Rail Industrial Access Funds

This program is administered by VDOT with the cooperation of DRPT for rail industrial access projects under the authority of § 33.1-221 of the Code of Virginia. Funding for these projects is provided through VDOT's Industrial, Airport, and Rail Access Fund and approved by the Commonwealth Transportation Board. The Rail Industrial Access (RIA) part of the program continues to serve as a local land use and economic development tool. Major industrial and commercial development today requires both well positioned highway and rail access. The Rail Industrial Access program brings forth a partnership opportunity with the industry, local government and DRPT to attract and retain industry and jobs while offering a viable transportation alternative to truck travel. As Virginia continues to promote economic development, the need for rail transportation access to industrial facilities will increase. Rail access funding under this program varies from year to year depending on the applications received by VDOT from all segments of the program and funds available, but in the past six years the RIA has averaged approximately $3.3 million per year for project grants.

8.5.1. Program Overview

The General Assembly of Virginia as enacted under § 33.1-221.1:1 of the Code of Virginia declared its purpose for the Industrial Access Railroad Tracks Program. The General Assembly declared it to be in the public interest that access railroad tracks and facilities be constructed to certain industrial commercial sites where rail freight service is or may be needed by new or substantially expanded industry and that financial assistance be provided to areas seeking to furnish rail freight trackage between the normal limits of existing or proposed common carrier railroad tracks and facilities and the actual site of existing or proposed commercial buildings or facilities.

The Commonwealth Transportation Board on November 16, 1995 passed a resolution for the use of Industrial Access Railroad Tracks Program to provide funding which is intended to be used as an incentive to encourage industrial or commercial development in the Commonwealth of Virginia. It is intended to fund projects that will have a significant economic impact.

The following organizations are eligible to apply for Industrial Access Railroad Track funding:

- Business, Commercial or Industrial Enterprises
- Municipal and County Governments may apply for funding on behalf of a business, commercial or industrial enterprise
- Local Departments of Economic Development may apply for funding on behalf on business, commercial or industrial enterprise
- Railroads

Eligible project costs include the following:

- Site Preparation (including grading and drainage)
- Track Construction
- Track Reconstruction
- Track Improvement
- Engineering
- Environmental Mitigation

Funds may be used to construct, reconstruct, or improve part or all of the necessary tracks and related facilities on public or private property currently used or being developed, existing or prospective, for single industries or industrial subdivisions under firm contract or already constructed, including those subdivisions owned or promoted by railroad companies and others. Ineligible project costs include the following:

- Relocation of Utilities
- Switches and track to clear point connecting the access track to the main line
- Acquisition of Right-of-Way

No more than $450,000 of the funds shall be allocated to any one county, town, or city in any fiscal year. No more than $300,000 of unmatched funds may be allocated to any one project in any fiscal year. The unmatched funds may be supplemented with additional matched funds, in which case the matched state funds shall not be more than the annual locality allocation. Any funds in excess of $300,000 shall be matched dollar-for-dollar by the recipient or from other non-program sources. The amount of industrial access railroad track funds allocated to a project shall not exceed 15 percent of the capital outlay of the designated business. The 15 percent limitation and the maximums on matched or unmatched funding may be waived at the discretion of the Board.

The Board shall, in the evaluation of projects, consider the cost of construction of an access track in relation to the prospective volume of rail traffic, capital investment, potential employment, or other economic and public benefits.

The Applicant/Designated Grantee shall be contractually committed to providing the Commonwealth with a contingent interest in that portion of trackage and facilities constructed or improved with the use of industrial access railroad track funds, for a 15-year period of time. Said portion shall be defined by the agreement. The access railroad track shall be made available for use by all common carriers using the railway system to which they connect. A certification shall be issued by the landowner or business using the access that states that they will provide for the continuous maintenance and assume the liability of the tracks and facilities.

The industry shall certify that it will provide the jobs and the rail traffic (carloads) indicated in the project application.

The grant recipient will be required to repay the Department its contribution to the cost of the construction and materials, less depreciation if the project tracks are abandoned, relocated or sold (without a grant assignment).

The grantee will also be required to repay the Department its contribution to the cost of the access track if:

- Rail use (carloads) is below the 15-year annual commitment levels specified to qualify the applicant for funding.
- Job commitment falls significantly below the 15-year annual commitment levels specified to qualify the applicant for funding.

8.6. Intercity, Commuter, and Passenger Rail Funding

The public transportation programs administered by DRPT continue to provide and improve the mobility and transportation choices for all Virginians and work to reduce traffic congestion in our urban areas. There are 56 public transportation services operating in Virginia. Services include: long-distance and commuter rail (Amtrak); commuter rail in Northern Virginia (Virginia Railway Express), Metrorail, bus transit, and passenger ferry services. The Code of Virginia §33.1-391.5 - describes the responsibilities of DRPT; and 49 U.S.C. Chapter 53, and the Federal Transit Act – establishes the statutory authority for the conduct of federally funded activities in passenger rail service.

Funding for passenger rail services is supported by federal and state transportation funds and local matching funds. The federal funds are administered by the Commonwealth and are apportioned annually to DRPT. The state funds are provided from the Mass Transit Trust Fund, the Mass Transit Priority Transportation Fund, and from the highway portion of the Transportation Trust Fund and are appropriated annually to DRPT. Funding for Amtrak is currently provided by the federal government for existing service routes in Virginia. Over the past six years, the Commonwealth has provided an average of 24 percent annual funding for the Virginia Railway Express in Northern Virginia as depicted in Figure 8-3 (CFR Sec. 266.15 FRA Requirements for State Rail Plan – [c.6.ii] revenues and costs).

8.7. Public-Private Transportation Act

The Code of Virginia, § 56-55 provides the policy of the General Assembly regarding the Public-Private Transportation Act of 1995. The Public-Private Transportation Act of 1995, as amended (the Act, or PPTA) is the legislative framework enabling the Commonwealth of Virginia, local governments, and certain other public entities as defined in the Act, to enter into agreements authorizing private entities to develop and/or operate qualifying transportation facilities. These implementation guidelines are for the Department of Transportation, the Department of Rail and Public Transportation, the Department of Aviation, the Department of Motor Vehicles, the Virginia Port Authority and other transportation agencies of the Commonwealth.

Public and private entities may also propose innovative financing methods, including the imposition of user fees or service payments under the provisions of the Act. Financing arrangements may include the issuance of debt, equity or other securities or obligations. A proposer may enter into sale and leaseback transactions and secure any financing with a pledge of, security interest in, or lien on, any or all of its property, including all of its property interests in the qualifying transportation facility.

While procedures incorporated in these guidelines are consistent with those of the Code of Virginia § 2.2-4301, per § 56-573.1 the selection process for solicited or unsolicited project proposals is not subject to the Virginia Public Procurement Act (§ 2.2-4300 et seq.).

To date, there have been no rail improvement projects that have been implemented under the provisions of the Commonwealth's PPTA program.

Revenue Source	FY 2007		FY 2006		FY 2005		FY 2004		FY 2003		FY 2002		6-Year Summary	
	Revenue ($)	% of Total	Revenue ($)	% of Total	Revenue ($)	% of Total	Revenue ($)	% of Total	Revenue ($)	% of Total	Revenue ($)	% of Total	Revenue ($)	% of Total
Operating Revenue (Fares)	$19,892,119	26.5%	$19,895,953	29.6%	$19,573,535	34.7%	$17,117,885	32.9%	$15,340,348	30.8%	$12,960,010	25.7%	$104,779,850	29.9%
Non-Operating Revenues (Subsidy)														
VA DRPT	$12,269,884	16.3%	$13,137,477	19.6%	$7,613,022	13.5%	$7,453,276	14.3%	$5,002,085	10.1%	$5,366,332	10.7%	$50,842,076	14.5%
Federal	$12,741,069	17.0%	$10,721,335	16.0%	$8,124,763	14.4%	$6,226,445	12.0%	$7,168,236	14.4%	$5,143,950	10.2%	$50,125,798	14.3%
Local	$8,802,762	11.7%	$6,878,061	10.2%	$6,352,999	11.2%	$6,352,890	12.2%	$5,752,890	11.6%	$5,752,890	11.4%	$39,892,492	11.4%
Subtotal	$33,813,715	45.0%	$30,736,873	45.8%	$22,090,784	39.1%	$20,032,611	38.4%	$17,923,211	36.0%	$16,263,172	32.3%	$140,860,366	40.1%
Capital Grants & Assistance														
VA DRPT	$9,455,655	12.6%	$1,769,727	2.6%	$3,778,146	6.7%	$4,238,109	8.1%	$6,150,235	12.4%	$7,915,624	15.7%	$33,307,496	9.5%
Federal	$10,762,936	14.3%	$12,796,829	19.1%	$9,824,036	17.4%	$6,689,765	12.8%	$8,597,822	17.3%	$11,080,201	22.0%	$59,751,589	17.0%
Local	$0	0.0%	$0	0.0%	$266,148	0.5%	$3,143,319	6.0%	$457,149	0.9%	$699,375	1.4%	$4,565,991	1.3%
Subtotal	$20,218,591	26.9%	$14,566,556	21.7%	$13,868,330	24.6%	$14,071,193	27.0%	$15,205,206	30.6%	$19,695,200	39.1%	$97,625,076	27.8%
Interest Income	$1,220,780	1.6%	$1,929,594	2.9%	$953,564	1.7%	$881,973	1.7%	$1,259,476	2.5%	$1,417,195	2.8%	$7,662,582	2.2%
Total Revenues	$75,145,205	100%	$67,128,976	100%	$56,486,213	100%	$52,103,662	100%	$49,728,241	100%	$50,335,577	100%	$350,927,874	100%
Combined VA DRPT Revenues	$21,725,539	28.9%	$14,907,204	22.2%	$11,391,168	20.2%	$11,691,385	22.4%	$11,152,320	22.4%	$13,281,956	26.4%	$84,149,572	24.0%

Figure 8 - 3 Annual Expenses for Virginia Railway Express (FY2002 to FY2007)
(Source: VRE Annual Financial Statements)

9. RAIL PROJECT ACCOMPLISHMENTS 2003 - 2008

9.1. FRA Requirements

This Chapter of the Virginia Statewide Rail Plan (VSRP) presents information related to Virginia's Transportation Network in historical context. This is not a requirement of 49 CFR § 266.15

9.2. Major Legislative Accomplishments

In the past six years Virginia has made great strides in incorporating rail planning and improvements into an integrated multi-modal transportation corridor network. Creation of the Rail Enhancement Fund and Rail Advisory Board in 2005 with a dedicated annual revenue source for rail improvements was a major accomplishment, as well as targeted general funds added to the REF program to address critical needs in Virginia's I-95 and I-81 transportation corridors. The Governor's Commission on Rail Enhancement for the 21st Century Report (2004) highlighted rail needs at both the national and Commonwealth level as key components of Virginia's ability to successfully compete in the new global marketplace.

9.3. Major Projects Underway or Completed

Virginia has been one of the leading states in implementing publicly funded rail improvements to support rail access for businesses and to encourage that shortline railroads are maintained. Virginia has invested heavily in the I-95 and I-81 Corridors to relieve highway and rail congestion, to increase on-dock rail movements from the Ports of Hampton Roads, and to advance high speed rail.

Projects are funded through public-private partnerships through a variety of Commonwealth programs including the Rail Enhancement Fund, Rail Preservation Fund, Rail Industrial Access Fund, Rail Bonds, and VTA2000 funds.

9.4. Rail Enhancement Funds

The Rail Enhancement Fund was initiated in 2005 and is the first dedicated source of funding for passenger and freight rail improvements in Virginia history. The Fund supports improvements for passenger and freight rail transportation throughout Virginia. Grants through this new program were first made in 2006. Figure 9-1 summarizes grants made to date under this program:

Railroad or Organization	Commonwealth Grant Amount ($)	Applicant Match Amount ($)	Total Project Cost ($)
Norfolk Southern	$84,624,000	$37,704,101	$120,328,101
CSX Transportation	$44,849,876	$19,221,376	$64,071,252
Virginia Railway Express	$14,036,797	$6,637,199	$20,673,996
NCDOT (SEHSR Project)	$2,281,750	$1,828,250	$4,110,000
Commonwealth Railway	$7,520,000	$3,940,000	$11,460,000
APM / Maersk Terminal	$9,300,000	$9,300,000	$18,600,000
Virginia Port Authority	$825,000	$1,336,714	$2,161,714
Total	**$163,437,423**	**$79,967,640**	**$243,405,063**

Figure 9 - 1 Rail Enhancement Fund Summary for FY2006 to FY2009

A brief description of some of the major projects completed or underway using public-private partnerships through the Rail Enhancement Fund are shown below.

- **NS Heartland Corridor:** A federal "project of national significance", this multi-state and federal partnership with NS constructing a double-stack container train corridor between the Ports of Hampton Roads and Columbus, Ohio (Figure 9-2, see previous page). Project includes raising 28 tunnels and miscellaneous rail improvements on existing NS right-of-way. The project also includes proposed new intermodal terminal facilities in Virginia (Roanoke Region), West Virginia (Pritchard) and a major expansion of the Rickenbacker Intermodal Terminal near Columbus, Ohio. Construction of the tunnel clearances and expansion of the intermodal terminal in Ohio will be completed by the end of 2009. Total project cost equaled $31,936,373; Public/Private cost equaled $22,350,000/$9,586,673.

- **APM Terminal Rail Yard Expansion, Portsmouth:** This project provided for expansion (doubling) of the on-dock rail yard to transfer containers to/from rail at the new APM Terminal marine facility at the Ports of Hampton Roads. Total project cost equaled $18,600,000; Public/Private cost equaled $9,300,000/$9,300,000.

- **Commonwealth Railway Mainline Safety Relocation Project, Portsmouth, Chesapeake, and Suffolk:** This project is the beginning of the Heartland Corridor, and consists of the relocation of approximately 4.5 miles of existing rail lines owned by the Commonwealth Railway shortline that currently run through urban neighborhoods in Portsmouth and Chesapeake, to the highway medians of the Western Freeway (Route 164) and I-664 through Portsmouth, Chesapeake and Suffolk. In the early 1980s, both Route164 and I-664 were built to accommodate a dual set of rail tracks within their medians. This rail-ready corridor will be used to serve both the planned Craney Island Marine Terminal and the recently completed APM Marine Terminal. Project construction of the rail relocation will be completed by the end of 2009. Total project cost equaled $4,800,000; Public/Private cost equaled $2,380,000/$1,440,000.

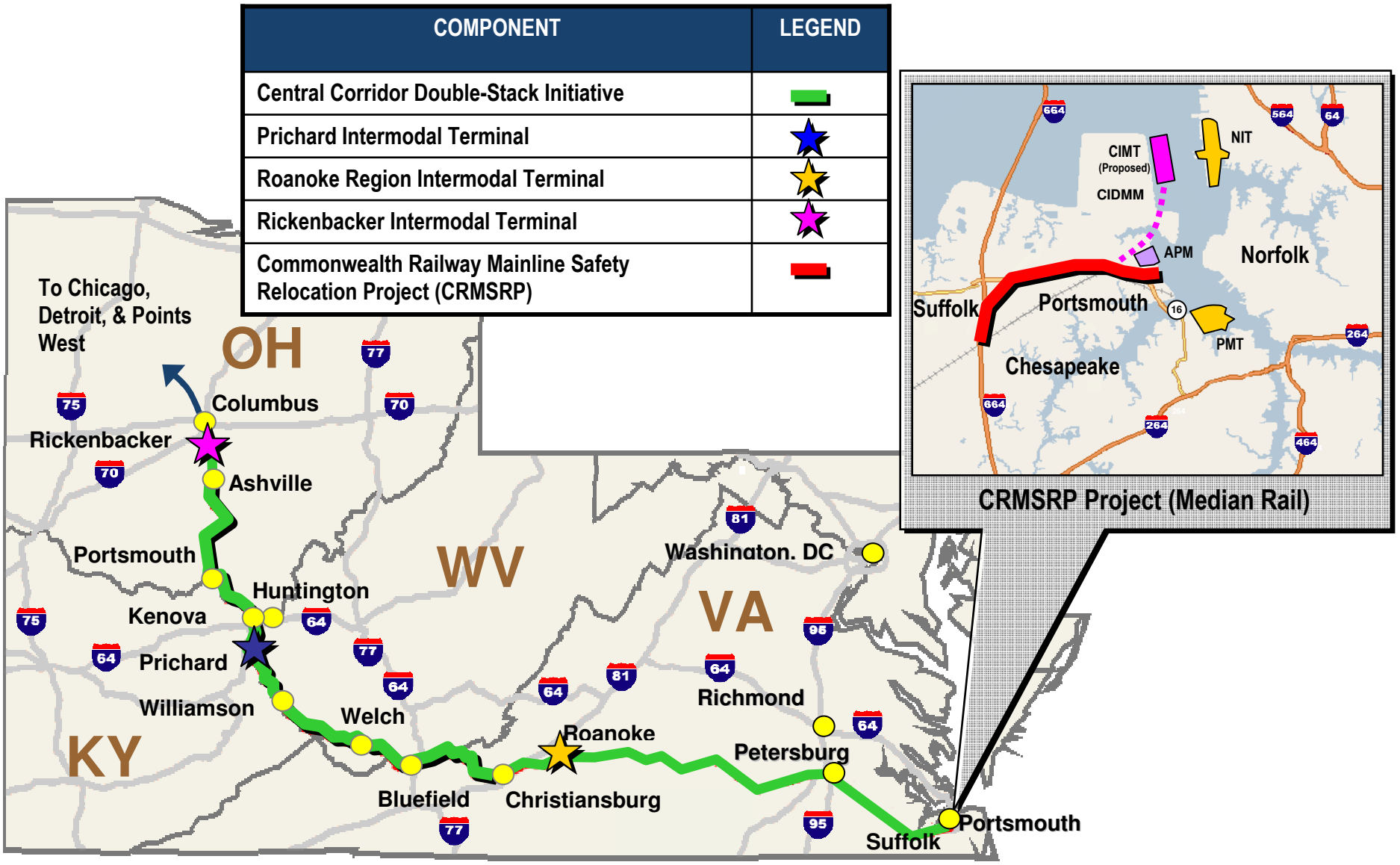


Figure 9 - 2 Heartland Corridor Double-Stack Initiative

9.5. Rail Preservation Fund

Since the fund was started in 1991, $44,296,025 has been invested by the Commonwealth in the shortline railroad system in Virginia. A list of the shortline railroads and respective grants received during in the past seven-year period (FY2003 to FY2009) for passenger and freight rail improvements are shown in Figure 9-5. Annual RPA funding varied from $2.9 to $4.1 million per year, with an average of approximately $3.5 million per year. A typical rail preservation project is shown in Figure 9-6. Major projects recently accomplished included improvements on portions of the Buckingham Branch railroad that handles Amtrak intercity passenger trains (the Crescent and Cardinal Amtrak routes); and improvements on the Commonwealth Railway to provide dual Class I access (NS and CSX) to major intermodal facilities at the new APM Terminal and the future Craney Island Marine Terminal.

Shortline Railroad	FY2003-FY2009 Grant Amount ($)
Bay Coast Railway	$967,496
Buckingham Branch	$9,104,219
Chesapeake & Albemarle	$75,541
Chesapeake & Western	$0
Commonwealth Railway	$5,506,511
Deepwater Terminal RR	$391,657
Norfolk & Portsmouth Belt Line	$2,827,000
North Carolina & Virginia	$310,000
Shenandoah Valley	$1,372,849
Virginia Southern Div. of BBRR	$1,275,702
Winchester & Western	$2,956,650
Total	**$24,787,625**

Figure 9 - 3 Rail Preservation Fund Summary for FY2003 to FY2009.

Figure 9 - 4 Typical Rail Preservation Project (Before and After)

9.6. Rail Industrial Access Fund

Since the fund was started in 1986, $38,844,663 has been invested by the Commonwealth in providing rail access to businesses in Virginia in conjunction with the Virginia Economic Development Partnership, County and Municipal Economic Development Departments, railroads and private industry. The capital investment associated with these business equaled approximately $4.9 billion dollars; generated 26,000 new jobs; and generated approximately 185,000 railcars – equivalent to taking 648,000 trucks per year off of the highway system.

For the past Seven-year period (FY2003 to FY2009), 60 grants were made totaling $20,437,816. The location of these grants occurred throughout the Commonwealth as depicted in Figure 9-7. The capital investment associated with these business equaled approximately $1.1 billion dollars; generated 8,500 new jobs; and generated approximately 44,000 railcars – equivalent to taking 154,000 trucks per year off of the highway system. A typical rail preservation project is depicted in Figure 9-8.

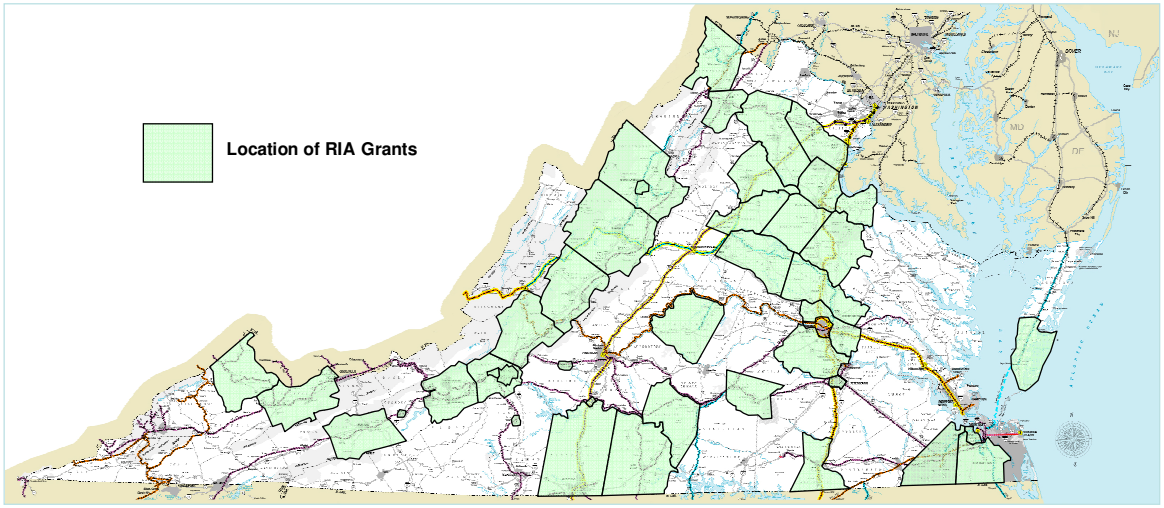


Figure 9 - 5 Location of RIA Grants (2003 – 2009)

Figure 9 - 6 Typical Rail Industrial Access Project

9.7. Other Rail Project Accomplishments

In addition to the above rail grant programs, Commonwealth VTA 2000 funds were used for the following special projects related to rail improvements in FY2003 to FY2008.

- **New Railroad Bridge over Quantico Creek, I-95 Corridor:** The 1,800-foot bridge was the only remaining single-track section of the entire 110-mile Washington, D.C. to Richmond corridor – which created a significant bottleneck. Construction of a second two-track bridge across Quantico Creek (which was managed by VRE) began in 2004 and was completed in 2007 at a cost of approximately $26 million.

Figure 9 - 7 New and Existing Railroad Bridge over Quantico Creek

- **Renovation of Richmond's Main Street Station (Phase I):** Originally opened in 1901, Main Street Station's historic reopening in 2003 marked completion of Phase I renovations to this 102-year-old landmark, and the return of passenger train service to downtown Richmond (Figure 9-7). Phase II renovations will add additional passenger walkways and rail improvements to make Main Street Station the primary rail station in the Richmond Metropolitan area for all Amtrak corridor and long-distance passenger rail services (including all north-south trains). Future upgrades to the station will also integrate bus, trolley, airport shuttle, taxi, and limousine services. As Main Street Station is further transformed into a significant multi-modal transportation center, it will once again serve as the major rail gateway to the City of Richmond and the metropolitan region for business, tourist, and other travel services.

Figure 9 - 8 Richmond Main Street Station
(Photograph courtesy Jeff Hawkins)

10. RAIL ABANDONMENTS, CONSOLIDATIONS, SAFETY AND TRAILS

10.1. FRA Requirements

This Chapter of the Virginia Statewide Rail Plan (VSRP) presents information related to specific aspects of Virginia's rail system.

The requirements of 49 CFR § 266.15 (c)(3)(ii), and 49 CFR § 266.15 (c)(3)(iv) are fulfilled by section 10.2

The requirements of 49 CFR § 266.15 (c)(3)(v) are fulfilled by section 10.3.

10.2. Rail Abandonments

Rail line abandonment description and maps are discussed in detail in Appendix A. Railway mileage peaked in Virginia at approximately 4,700 route miles in 1920. Today, there are approximately 3,200 route miles, a loss of roughly 32 percent. Railway mileage continues to decline, although the pace has slowed significantly as much of the unprofitable segments and unneeded capacity have already been abandoned. In the 20 year period between 1970 and 1990, there were 679.81 route miles abandoned in Virginia. In the 16 year period from 1991 to 2007, there were only 132.92 route miles abandoned.

There are no rail lines in the state which a common carrier has identified as potentially subject to abandonment in the next three years.

There are no rail lines in the state for which abandonment or discontinuance applications are pending.

10.3. Rail Consolidations

In 2009, the Buckingham Branch Railroad Shortline has acquired the Virginia Southern Shortline Railroad and is operating this railroad as the Virginia Southern Division of the BBRR. To the extent that public information is available, the Commonwealth has no knowledge of other common carrier lines operating within Virginia that have submitted proposals, or are in the process of negotiations for any mergers, consolidations, reorganizations, purchases by other common carriers, or other unification and coordination projects

10.4. Rail Safety

Rail safety is a critical issue for rail operators and public agencies that have an oversight role for transportation safety. Highway-rail grade crossing safety is of particular concern. According to the Association of American Railroads (AAR), from 1980 through 2007, the number of grade crossing incidents fell 74 percent, while the grade crossing incident rate (incidents per million train-miles) fell 77 percent. Based on accident data 2007 was the safest year ever in terms of grade crossing safety.

AAR estimates that there are approximately 145,000 public grade crossings in the United States, and that improving grade crossing safety represents an enormous challenge that will take the combined efforts of railroads; state, local, and federal governments; public safety officials; and the public. A freight train moving at 55 miles an hour can take a mile or more to stop. According to a June 2004 report issued by the Department of Transportation's Inspector General, 94 percent of all grade crossing accidents are caused by risky driver behavior, and about half of all grade crossing accidents occur at crossings that are already equipped with active warning devices such as bells, gates, and lights.

10.4.1. Operation Lifesaver

Operation Lifesaver is a non-profit, international continuing public education program first established in 1972 to end collisions, deaths and injuries at places where roadways cross train tracks, and on railroad rights-of-way.

Operation Lifesaver programs are sponsored cooperatively by federal, state, and local government agencies; highway safety organizations, and the nation’s railroads. DRPT is an active participant in Virginia Operation Lifesaver Inc., a non-profit organization established in 1979 to address the need in Virginia to eliminate death and injuries at highway-rail grade crossings and on railroad rights of way and properties.

Virginia Operation Lifesaver is made up of volunteer Presenters that give free presentations regarding highway-rail grade crossing safety and trespass prevention on railroad rights of way and properties to: schools, drivers training classes, professional drivers, school bus drivers, public safety personnel, civic groups, and any other organization that has an interest. According to Operation Lifesaver statistics for 2008:

- National: At the national level there were 2,391 collisions; 935 injuries; and 286 fatalities associated with highway-rail grade crossings. There were 426 injuries and 458 fatalities associated with trespassers on railroad rights-of-way.
- Virginia: Within the Commonwealth, there were 44 collisions, 14 injuries and 4 fatalities associated with highway-rail grade crossings. There were 8 injuries and 4 fatalities associated with trespassers on railroad rights-of-way.

10.4.2. Highway – Rail Grade Crossings

The Commonwealth through VDOT has received approximately $6.7 million in federal funds under Section 1103(f) since 1993 for its portion of the designated Southeast High-Speed Corridor. These funds have been used to install lights, gates, and constant warning time devices at 36 crossings, construct a pedestrian overpass over the high-speed corridor in Prince William County, and support design and construction of three grade separations completed with Section 148 funds.

Under the FHWA Section 148 Highway Safety Improvement Program (HSIP) the Commonwealth receives $4.4 million per year for highway-rail grade crossing safety projects. These Section 148 funds are not restricted to passenger rail lines, but can be used for freight rail crossings as well. By designating additional federal safety funds for railroads, VDOT has been able to complete between 15 and 40 projects per year. Also, support is provided for grade separations that will be paid for by other funds. Closures of existing at-grade crossings are made where possible under this funding program.

As the number and frequency of trains continue to increase in Virginia, concern has been raised by municipalities and communities where past land use decisions have allowed residential neighborhoods to be built near mainline rail tracks and where crossing of rail tracks by automobiles is an accepted practice to access main highways. A recent study by the Hampton Roads Planning District identified a number of at-grade crossings in the Suffolk area where communities have been adversely impacted by the increase in the number of trains carrying coal and intermodal cargo. Where significant impacts occur, VDOT serves as the Commonwealth's agency with the responsibility to evaluate the need for crossing improvements, or the elimination of the crossing by constructing a grade separating bridge to carry the highway over the existing rail tracks.

A recent rail safety project example is the Commonwealth Railway Mainline Safety Relocation project currently under construction, and scheduled for completion by the end of 2009. The project consists of relocating approximately 4.5 miles of existing shortline rail tracks (Commonwealth Railway) to the medians of the Western Freeway (Route 164) and I-664) through Portsmouth, Chesapeake and Suffolk, Virginia. In the early 1980s, both roadways were built to accommodate a dual set of rail tracks within their medians. This rail-ready corridor will be used to serve both the planned Craney Island Marine Terminal and the recently completed APM Marine Terminal. Rail traffic from these two facilities is expected to exceed one million TEUs annually. As depicted in Figure 10-1, relocation of the existing rail line to the Route 164/I-664 Median Rail-Ready Corridor will:

- Move the rail line away from densely populated areas of Chesapeake and Portsmouth, Virginia, to a secure, guard-rail protected rail corridor away from pedestrian and motorist traffic
- Eliminate the potential for rail-related accidents at the 14 at-grade crossings currently used by motorists and pedestrians
- Limit the noise levels and pollution emissions from automobiles idling at railroad crossings as well as from trains passing through the neighborhoods in the vicinity of the existing lines

- Divert containerized cargo traffic away from regional highways, thereby reducing highway congestion and improving highway safety

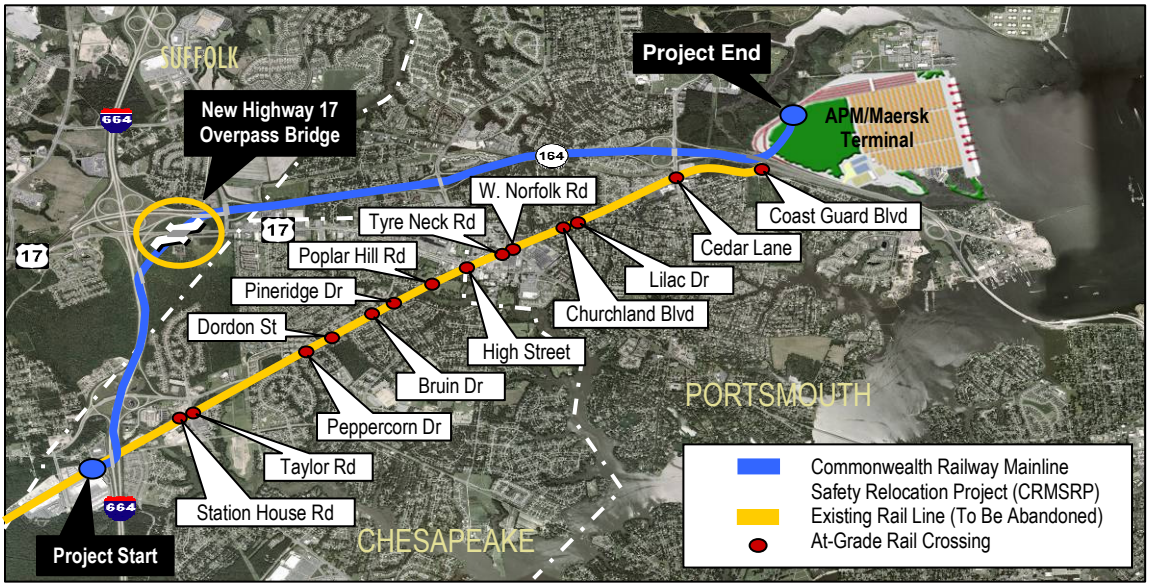


Figure 10 - 1 Commonwealth Railway Mainline Safety Relocation Project (Plan View)

10.5. Rails to Trails

Trails that are built alongside abandoned rail corridors are known as “rails-to-trails.” Trails that are built adjacent to an active rail line are known as "rails-with-trails." Existing rails to trails in Virginia are discussed and depicted on maps in Appendix A and are based on the Virginia Outdoors Plan (2007) prepared by the Virginia Department of Conservation and Recreation (DCR). Also shown and discussed are potential trail projects that are under development, or are being evaluated for feasibility by the Commonwealth.

11. RAIL IMPROVEMENT PROJECTS

11.1. FRA Requirements

This Chapter of the Virginia Statewide Rail Plan (VSRP) presents information related to improvements to Virginia's entire rail system as required by 49 CFR § 266.15 (c)(6)(iii), 49 CFR § 266.15 (c)(7), 49 CFR § 266.15 (c)(8), 49 CFR § 266.15 (c)(9) and 49 CFR § 266.15 (c)(9)i.

The requirement of 49 CFR § 266.15 (c)(6)(iii) is met by the narratives accompanying each project description.

The data required by 49 CFR § 266.15 (c)(7) is presented in section 11.2.

The data required by 49 CFR § 266.15 (c)(8) is presented in section 11.2.and the narratives accompanying each project description.

The requirement of 49 CFR § 266.15 (c)(9) is fulfilled by the narratives accompanying each project description.

The requirement of 49 CFR § 266.15 (c)(9)(i) is fulfilled by the narratives accompanying each project description and the Rail Resource Allocation Plan.

11.2. Methodology

Based on existing conditions and anticipated future growth demands, this section presents an assessment of the estimated rail needs for the Commonwealth through 2035 and are unrestricted by costs, funding availability, responsibility, and priority – these issues will be included in the following chapter which contains the 2008 Statewide Rail Resource Allocation Plan. The 2008 Statewide Rail Resource Allocation Plan was written prior to the ARRA funding legislation and reflects only Commonwealth of Virginia funding of projects coupled with local match funds. This section contains investments needs that include data supplied directly by the railroads. It also includes needs identified by the FRA and Commonwealth through previous and ongoing major investment studies that include:

- Potential Improvements to the Washington-Richmond Railroad Corridor Report to Congress – Amtrak in conjunction with FRA (1999)
- I-95 Corridor Coalition: Mid-Atlantic Rail Operations Study - MAROPS Phase I (2002)
- Southeast High Speed Rail Corridor – Tier I Environmental Impact Statement (2002)
- The Northeast – Southwest – Midwest Corridor Marketing Study (2003)
- Technical Monograph: Transportation Planning for the Richmond-Charlotte Railroad Cooridor – FRA (2004)
- Governor's Commission on Rail Enhancement for the 21st Century Report (2004)
- Washington, DC to Richmond Third Track Feasibility Study (2006)

- TransDominion Express (TDX) Update Report (2007)
- I-81 Corridor Improvement Study Tier I Final Environmental Impact Statement (2007)
- Roanoke Region Intermodal Facility Summary Report (2008)
- I-95 Corridor Coalition: Mid-Atlantic Rail Operations Study - MAROPS Phase II (Ongoing)
- Opportunities for Truck to Rail Diversion in Virginia's I-81 Corridor (Ongoing)
- Southeast High Speed Rail Corridor Tier II EIS (Ongoing)
- Richmond/Hampton Roads Passenger Rail Tier I Environmental Impact Statement (Ongoing)
- Richmond Area Rail Improvement Project Environmental Documentation (Ongoing)
- Shortline Railroad Improvement Program Technical Memorandum (2008)

Summaries of the above reports and studies are contained in Appendix B. Copies of the complete reports can be found on DRPT's website www.drpt.virginia.gov . Also reviewed were strategic multimodal transportation plans developed by the Virginia Port Authority; Amtrak; the Virginia Railway Express; the NS Heartland Corridor Double-Stack Initiative; the CSX National Gateway Initiative; and DRPT's Public Transportation and Transportation Demand Management (TDM) plans.

In the discussion below, project needs are based on current conditions and anticipated trends. Estimated needs are presented in four categories:

- Passenger Rail Corridor Initiatives
- Class I Railroad Improvements
- Shortline Railroad Improvements
- Rail Improvements to Virginia Ports

Because of their significant impact on rail traffic and potential economic development in connecting Virginia to global markets, the ports were considered a separate category in determining rail improvement needs.

All improvements address one or more of the following:

- Reducing passenger car and truck freight traffic to alleviate highway congestion, reduce energy demands and reduce pollutants
- Increasing freight capacity throughout the Commonwealth to support greater demand for freight rail shipping, growth in the coal industry and improved capacity at Virginia's ports
- Improving passenger rail by enhancing system performance and adding capacity

The freight railroads are private, for-profit businesses and, in accordance with federal policies concerning competitiveness, do not release certain information. The Statewide Rail Plan provides general information about Class I freight rail improvement projects. Project cost estimates for Norfolk Southern and CSX have been provided by the respective railroads and are being evaluated by the Commonwealth.

In the case of shortline railroads, DRPT assisted in the development of cost estimates for future capital needs and projects. For passenger rail projects, DRPT and North Carolina are conducting separate but coordinated detailed planning and engineering analysis that, while not yet complete, provides the best estimate of costs to date.

Due to market uncertainties and significant recent cost increases associated with railroad construction, these are conservative cost estimates. It is the Commonwealth's standard practice to execute project agreements with the railroads that allocate 100 percent of the risk of cost escalation to the private sector in delivering capital projects. Any rail project that receives public funding from the Commonwealth must represent the best value for the taxpayer's dollar and procurement of design and construction services must be in accordance with Commonwealth policies. This requires the bidding of construction contracts to insure competitiveness and opportunities for small, woman and minority owned businesses (SWaM) to participate.

All potential rail improvement projects have undergone an internal environmental review by DRPT to identify project readiness and potential environmental issues to be address during project planning and analysis by the railroads or rail operators. The environmental review utilized the Department of Conservation and Recreation (DCR) "Land Conservation Explorer" on their website at www.vaconservedlands.org to evaluate the presence of various federal, state, local, and private environmental easements or areas that might be affected by any rail development that occurred outside of existing rail rights-of-way.

The cost estimates are in 2010 dollars unless otherwise noted. Cost estimates include capital costs only. No operating or equipment costs are included; they will be identified in the Statewide Rail Resource Allocation Plan.

In the information that follows, project needs are presented in two ways: 1) as part of major Commonwealth transportation that serves corridor initiatives for multimodal networks in accordance with Virginia's long range transportation plan; and 2) as an industry project associated with the Class I railroads (Norfolk Southern and CSX), the 9 shortline railroads, passenger rail operators (Amtrak and VRE) and the Ports of Hampton Roads.

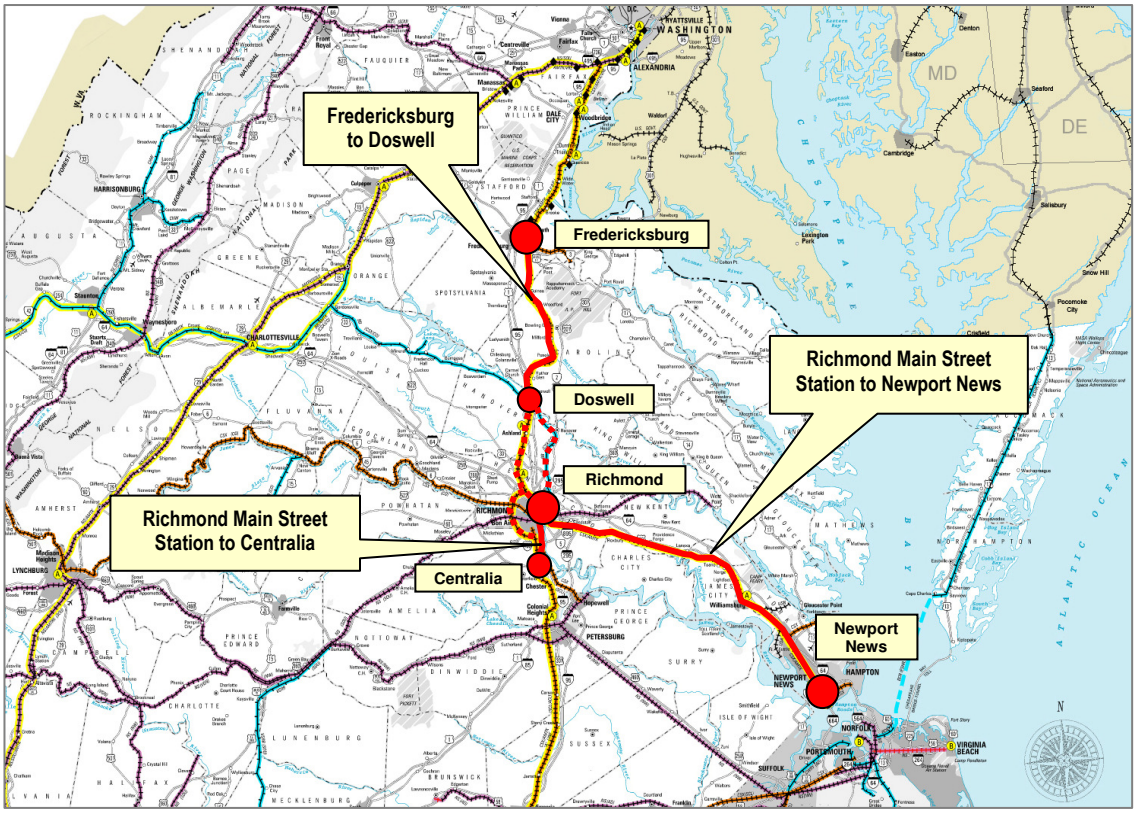
Corridor improvements are those projects within identified transportation corridors that will increase the freight shipments to and from ports, improve commuter and intercity rail within regions of the Commonwealth and other freight improvement projects identified by Class I and shortline railroads in Virginia. The total cost for all rail transportation corridor improvements is approximately $5 billion using the upper end cost estimates for projects that are presented within a range. This total cost represents an average annual expense of approximately $185 million for the 27-year period beginning 2009 through 2035. All costs are stated in 2010 dollars escalation to year of expenditure (YOE) is included.

The total cost estimate includes long term rail needs that contain significant public benefits associated with improving passenger rail, reducing highway congestion and fostering economic development. Some needs could be met within current state funding streams consistent with the development of the Six Year Improvement Plan. Those projects selected represent the short-term needs identified in the rail resource allocation plan in the next chapter, with all or some portion of the remaining projects to be programmed into the 2035 long range plan based on public benefits and available funding.

11.3. Passenger Rail Corridor Initiatives

11.3.1. I-95/I-64 Intercity Passenger Rail Project (I-64, I-95, I-295 and Route 460)

The I-95/I-64 Intercity Passenger Rail Project includes rail service between Washington, DC, Richmond and Newport News. Third track capacity improvements north of Fredericksburg have been identified as part of the improvements for VRE between Fredericksburg and Washington, DC The project plan for the Urban Crescent Express assumes that a passenger rail station will be added in Caroline County as part of a transit-oriented development project.



With the vast majority of the state's population and employment along this corridor, I-95/I-64 Intercity Passenger Rail Project presents the best ridership opportunity in the Commonwealth. Total Amtrak ridership in the corridor in 2008 totaled 516,000.

Figure 11 – 1is the location map for the project.

Figure 11 - 1 I-95/I-64 Intercity Passenger Rail Project

11.3.1.1. Key Facts

- The I-95/I-64 transportation corridor connects major Virginia population and employment centers and contributes significantly to the Commonwealth's economy.

- This project will provide highway congestion relief and increase transportation choices through freight and passenger rail improvements between Washington, DC, Richmond and Newport News.
- With the vast majority of the state's population and employment centers along this corridor, the I-95/I-64 Intercity Passenger Rail Project presents the best ridership opportunity for increasing rail ridership in the Commonwealth.
- Annual Amtrak ridership in this corridor totaled 516,000 in 2008. This project could increase ridership by a minimum of more than 80 percent (980,700) up to more than 110 percent (1,130,400) in seven years (2015). By 2030, ridership could increase to between 1,570,100 and 1,817,600 passengers per year.
- The I-95/I-64 Intercity Passenger Rail Project will:
  - Enhance passenger and freight rail operations with more frequent service, capacity and travel time savings between Hampton Roads, Richmond and Washington, DC, including service to the Northeast Corridor.
  - Construct or expand passenger rail stations to provide multimodal connections and encourage transit-oriented development.
  - Improve passenger platforms at Richmond's Main Street Station to accommodate long distance Amtrak trains and increase customer access.
  - Provide passenger rail improvements in anticipation of high speed rail development in the Commonwealth.

11.3.1.2. Project Management

- DRPT will complete federal environmental documentation to determine the service route between Main Street Station in Richmond and Doswell for potential high-speed rail service.
- The Commonwealth, Amtrak, CSX and VRE will coordinate all project-related rail improvements and operations.
- The project will be managed through a public-private partnership between the Commonwealth, CSX, Amtrak and federal partners.

11.3.1.3. Project Phasing Without Federal Funding

- Phase I- (Completed by 2015) - Capacity/Station Improvements
  - $215.5 M ($222.3 M YOE) total project cost ($152.7 M state)*
  - One new daily round trip train from Richmond to Washington, DC as a demonstration project for three years beginning in FY2010, station improvements at Staples Mill Station and the rehabilitation of one train set.
  - Design and construction of capacity improvements from Washington, DC to Richmond and Newport News, including third main track sections and enhancements to increase on-time performance.

  - Completion of environmental study to select the route for future high speed passenger trains between Richmond and Doswell, as required in the federal planning process.

- Phase II - Regional Trains to Newport News
  - $406.8 M ($440.8 M YOE) total project cost (unfunded)*
  - Complete capacity improvements from Phase I and extend three regional trains from Staples Mill Station to Newport News for a total of five daily trains to serve Newport News, Richmond and Washington, DC. Enhance passenger rail stations.

- Phase III - Additional Trains/Rolling Stock
  - $91 M ($118.7 M YOE) total project cost (unfunded)*
  - Four additional trains with half-hour service between Newport News, Richmond and Washington, DC for a total of nine daily trains.

- Phase IV - Reroute Long Distance Trains
  - $231.3 M ($310.9 M YOE) total project cost (unfunded)*
  - Capacity improvements between Centralia and Main Street Station to allow long distance trains to serve Main Street Station. New service to Caroline County and other station improvements.

- Phase V - New Bridge/Track Capacity
  - $2,636.1 M ($3,545.1 M YOE) total project cost (unfunded)
  - Bridge capacity improvements between Newport News and Washington, DC, including a new Potomac River bridge.
  - Connect third track sections in the I-95 corridor and second main line sections between Richmond and Newport News.

11.3.1.4. Project Cost Without Federal Funding:

The estimated total project cost is $3,580.7 million *($2010)*

- Proposed FY2009 – FY2015 Improvement Plan– $215.5 M total project cost for Phase I to be completed from FY09-FY15 ($152.7 M state).
- Phases II, III, IV and V are unfunded needs identified in the Statewide Rail Resource Allocation Plan, which are proposed for funding in future years.
- Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction and nongovernmental funding sources.
- Project completion and service implementation dates are subject to the availability of funding and contract negotiations with public and private partners. All capital costs are based on the most recently available estimates, expressed in 2010 dollars.

- All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.

**All marked items require operating funds in addition to the capital costs noted in this document.*

11.3.1.5. Additional Improvements with Federal Funding

DRPT submitted a Decision brief on April 6, 2009 and the FRA concurs that the Buckingham Branch alternative may be dismissed from further consideration for passenger rail service between Richmond and Doswell. This was a first step toward a Tier 2 evaluation for the Southeast High Speed Rail (SEHSR) corridor. The I-95 Richmond to Washington, D.C. improvements represents the northern end of the SEHSR Corridor. Work completed for this project will become part of the SEHSR corridor discussed in section 11.3.3.

On May 19, 2009 the FRA signed a cooperative agreement with DRPT that includes a $2 million grant for the design of capacity and routing improvements in Richmond Virginia. This grant includes design of track and interlocking improvements between Main Street Station and South Acca Yard. This project will advance the development of the corridor to accommodate the eventual relocation of all passenger service through Richmond Main Street Station. In addition, DRPT received an ARRA funded grant on August 19, 2009 from FHWA for continuing the Acca Yard/Richmond Area Improvements design and environmental documentation. DRPT has requested that FHWA transfer this grant to FRA for administration so that both grants can be coordinated with other planning and design efforts underway in this corridor.

The American Recovery and Reinvestment Act (ARRA) of 2009 provided funding to the FRA for High-Speed Intercity Passenger Rail (HSIPR) projects. The Commonwealth of Virginia submitted on August 24, 2009 a track 1a application for final design and construction of 11 miles of third track for Arkendale to Powell's Creek. The Commonwealth also submitted on October 2, 2009 a track 2 round 1 application for 19 individual projects that make up the Richmond to Washington DC I-95 Corridor phase I improvements for SEHSR. The following list is the 19 projects in priority order including YOE costs;

- Crossroads to Hamilton Third Track Construction CFP 53 to CFP 56 – $19.1 million
- Construction of Alexandria Station Platform / Metro Connection CFP 105 – 16.5 million
- Construction of Fourth Main Line Track AF to RO CFP 104 to CFP 110 - $17.6 million
- I-95 Arkendale Powell's Creek Third Track CFP 72 to CFP 83 - $75.2 million
- Richmond Area/Acca Yard Improvements Phase I CA 76.2 to CA 84.5, MP 87 to MP 90, and SRN 1 to SRN 4 - $256.9 million
- Richmond Area/Acca Yard Improvements Phase II CFP 1 to CFP 7, S0 to S 11 - $375.5 million

- Platform Infrastructure Improvements North of Fredericksburg (Various) - $72.7 million
- Fourth Main Line Upgrade/Construction Fredericksburg to Mine Road in Spotsylvania County CFP 54 to CFP 59 - $12.4 million
- North Doswell to Colemans Mill Third Main Line Track Construction CFP 23 to CFP 30 - $60.1 million
- Lorton to Franconia Third Track Construction CFP 93 to CFP - $58.7 million
- Powells Creek to Lorton Third Track Construction CFP 83 to CFP - $193.6 million
- Arkendale to Dahlgren & Aquia Bridge Third Track Construction CFP 61 to CFP 72 - $163.6 million
- Parham Station to Elmont Third Track Construction CFP 7 to CFP 11 - $56.8 million
- Guinea to Milford Third Track Construction CFP 30 to CFP 48 - $131.8 million
- SEHSR Track and Curve Geometry Realignment to Accommodate Maximum Achievable Speed Segments of 90 Miles Per Hour - 104 Miles - $58.0 million
- High Speed Interlockings Richmond to Washington, D.C. - $54.7 million
- Signal Improvements for 90 Miles per Hour Segments of Train Operations Richmond to Washington, D.C. - $129.7 million
- Washington, D.C. to AF Interlocking/Alexandria – Study - $1.5 million
- Dahlgren to Fredericksburg 3rd Track Feasibility Study – $0.5 million

Projects are scheduled for completion by the end of 2017 and the FRA decision is expected in early 2010 for funding levels. Project list may need to be adjusted depending upon actual funding levels awarded.

11.3.1.6. Annual Benefits

- Removes over 1.15 million cars from Virginia highways
- Saves over 6.3 million gallons of fuel
- Saves 51 thousand tons of CO2 emissions

11.3.1.7. Partnership Opportunities

The I-95/I-64 Intercity Passenger Rail Project will represent a public private partnership between the Commonwealth, CSX, Amtrak, local/regional bodies and the private sector as it relates to station development.

11.3.2. Commuter Rail Improvement Project

The VRE Manassas Line extends from Washington DC west to Alexandria and Manassas, roughly south of the I-66 and Route 29 Corridors. This commuter line primarily serves Prince William and Fairfax Counties, although commuters from counties further west also use these commuter lines for their daily commute to the Washington DC region.

VRE is the primary user of two Norfolk Southern mainline tracks between Alexandria and Manassas. Upgrades to this portion of track will support Class 4 rail track standards for continued passenger train use of the system. VRE commuter and Amtrak intercity trains both use this line section. Although this line section is also utilized for freight movements, the high standard of track conditions is necessary for continued efficient and dependable passenger train operations. Without these improvements, these tracks could degrade to Class 3, thus lowering the track speeds, impacting passenger train schedules and diminishing rider confidence in train reliability. Proposed projects along this line section include construction improvement costs, such as infrastructure rehabilitation, to allow for continued commuter and intercity train speeds at or above their current levels. Ultimately, improvements to this section of the rail system will also benefit system expansions in the I-81 and Route 29 corridors. Figure 11-2 depicts the route location. In a related project, the Alexandria to Lynchburg improvement project will provide switch improvements along this line section. Norfolk Southern has included the project costs for the Lynchburg passenger rail service in its Crescent Corridor project.

Figure 11 – 2 is the location map for the Alexandria to Manassas portion of the project.

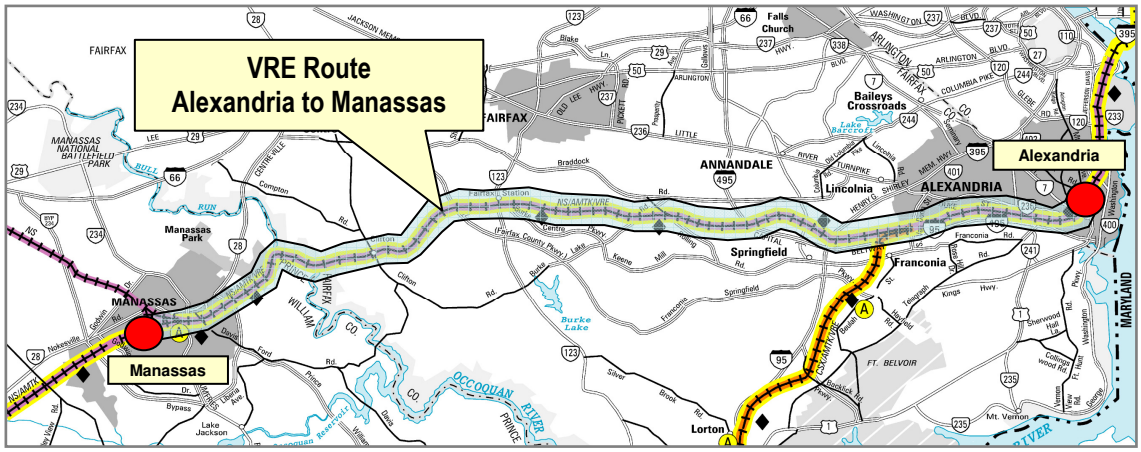


Figure 11 - 2 Commuter Rail Improvement Project – Manassas to Alexandria

Population growth and commuter patterns continue to shift westward along the I-66 corridor. DRPT has provided Rail Enhancement funding to conduct a major investment study to determine the viability and potential locations of future passenger rail stations along the Norfolk Southern line section between the City of Manassas and Gainesville/ Haymarket in Prince William County. Following the completion of this study, VRE and Norfolk Southern must work collaboratively to identify the infrastructure capacity improvements necessary for the expansion of VRE service and the successful coexistence of freight and passenger rail operations, currently and in the future. Unlike the other Norfolk Southern line sections utilized by VRE today, this line section is currently used exclusively for freight train service. It

is a vital intermodal link between the Port of Hampton Roads, the Virginia Inland Port and the Crescent Corridor. This project will extend VRE commuter rail service over the 11 .3 mile line section between the City of Manassas and Gainesville/Haymarket along the I-66 rail corridor, including the construction of three stations. Extensive upgrades to the existing line will make tracks suitable for passenger rail operations.

Figure 11 – 3 is the location map for the Gainesville to Haymarket portion of the project.

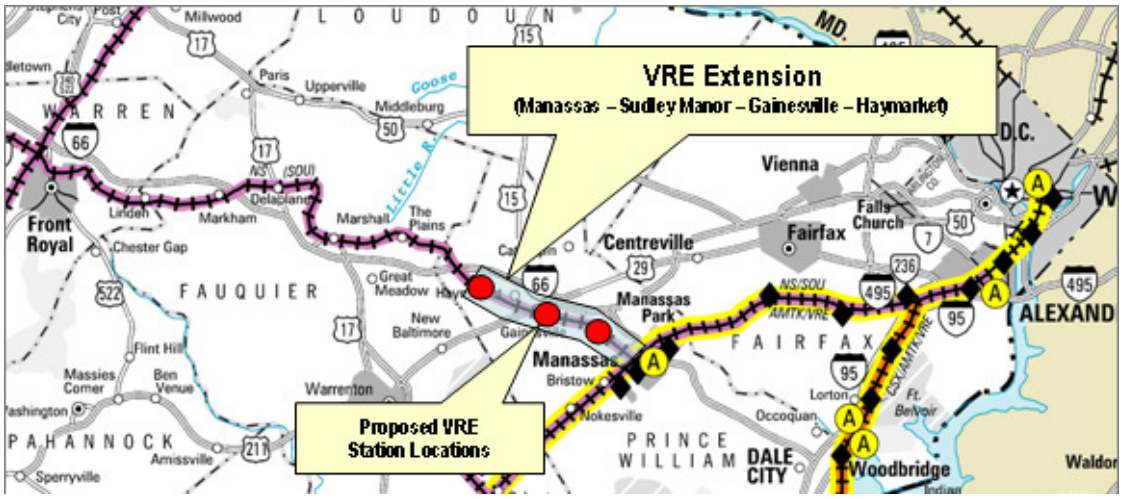


Figure 11 - 3 Commuter Rail Improvement Project – Gainesville to Haymarket

In 1992, VRE began service on CSX tracks between Fredericksburg and Washington, DC In order to implement commuter rail service, VRE and the Commonwealth committed to constructing improvements at no cost to CSX. Through the Third Track Improvements, VRE and the Commonwealth have worked to fund and construct rail capacity improvements. In 2006, DRPT released the *Washington, DC to Richmond Third Track Feasibility Study* which identified a cost of over $307 million (2006$) to build a third track between Fredericksburg and Washington, D.C, based on minimal engineering.

This project includes the third track construction of Arkendale to Powell's Creek, but does not include a new Rappahannock River bridge at Fredericksburg or a new Potomac River bridge in Washington, DC. Project partners continue to work through the challenge of implementing the Third Track Improvements. CSX, VRE, Amtrak and DRPT have together identified multiple individual projects in this corridor that will expand passenger rail service and improve existing service through signalization, station and rail infrastructure improvements.

Figure 11 – 4 is the location map for the Fredericksburg to Washington portion of the project.

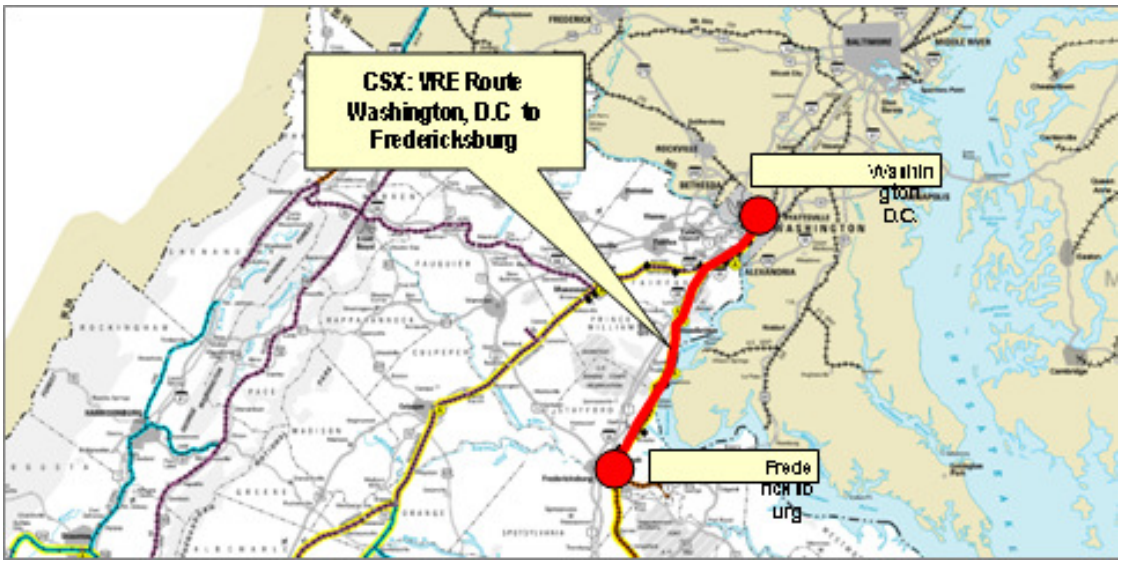


Figure 11 - 4 Commuter Rail Improvement Project – Fredericksburg to Washington

11.3.2.1. Key Facts

- Population growth and commuter patterns have expanded westward along the I-66 corridor and the I-95 corridor continues to grow in population and employment.
- This project will provide congestion relief and new transportation choices in both the I-95 and I-66 corridors.
- Previous investments include Rail Enhancement funding in FY2005 to conduct preliminary engineering and design for a new third main track and station at Cherry Hill in the I-95 corridor and a major investment study to determine the viability of extending service from Manassas to Gainesville/Haymarket in the I-66 corridor.
- VRE provides the equivalent capacity of one highway lane during peak travel periods.
- In 2008, VRE set numerous ridership records as the demand for commuter rail continues to grow.
- Improvements in the Virginia Railway Express service area will:
  - Increase the on-time performance of passenger trains and upgrade the signal system.
  - Expand service and passenger stations between Manassas and Gainesville/Haymarket.
  - Construct a new station at Cherry Hill in the I-95 corridor.
  - Provide an automatic train control system to reduce potential accidents through advance warning and collision avoidance technology.
  - Add new platforms at several existing stations to increase customer access.

- Encourage transit-oriented development.

11.3.2.2. Project Management

- The Commonwealth, Amtrak, CSX, Norfolk Southern and VRE will coordinate all project-related rail improvements and operations.
- The project will be managed through a public-private partnership between the Commonwealth, CSX, Norfolk Southern, VRE and federal partners.

11.3.2.3. Project Phasing

- Phase I - Capacity/Stations (I-95/I-66)
  - $18.2 M ($18.8 M YOE) total project cost ($12.3 M state)
  - Automatic train control and cab signals from Arlington to Washington, DC to improve safety.
  - Final design of the Cherry Hill Third Track in Prince William County.
  - Preliminary engineering for the service expansion from Manassas to Gainesville/Haymarket.
  - Track and bridge upgrades between Alexandria and Manassas.
- Phase II - Capacity/Stations (I-95/I-66 Part 2)
  - $197 M ($221.3 M YOE) total project cost (unfunded)
  - Final engineering and construction of the Cherry Hill Third Track in Prince William County.
  - Station capacity and additional platform improvements.
- Phase III - Capacity/Stations (I-66 Part 3)*
  - $88.2 M ($100.5 M YOE) total project cost (unfunded)
  - Construction of tracks and stations for an average of four daily trains serving Gainesville/Haymarket. Only track construction, not stations, is included.

11.3.2.4. Project Cost:

Total project cost- $303.4 million ($2010)

- Proposed FY2009 – FY2015 Improvement Plan – $18.2 M total project cost for Phase I to be completed from FY09-FY15 ($12.3 M state).
- Stations for Phases II and III are unfunded needs identified in the Statewide Rail Resource Allocation Plan, which are proposed for funding in future years.
- Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction and nongovernmental sources.

- Project completion and service implementation dates are subject to the availability of funding and contract negotiations with public and private partners. All capital costs are based on the most recently available estimates, expressed in 2010 dollars.

- All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.

**All marked items require operating funds in addition to the capital costs noted in this document*

11.3.2.5. Total VRE Annual Benefits for all projects

- Removes over .6 million cars from the I-95 corridor
- Saves over 2.1 million gallons of fuel
- Saves 9.7 thousand tons CO_2 emission

11.3.2.6. Partnership Opportunities

The Commuter Rail Improvement project will require a public private partnership between the federal government, the Commonwealth, CSX , NS, VRE, and the private sector as it relates to the construction of stations.

11.3.3. Southeast High Speed Rail Project (I-95, I-295, I-85, I-64 and Route 460)

Figure 11 – 5 is the location map for the project.

Figure 11 - 5 Southeast High Speed Rail Project

11.3.3.1. Key Facts

- As population grows in major urban corridors, as highway and airline congestion increase and as energy costs rise, rail ridership is increasing across the U.S., creating demand for higher speed rail services.
- The I-95 corridor has been identified as a priority corridor for high speed rail in the U.S.
- The Southeast High Speed Rail corridor will extend high speed rail service south from Washington, DC to Richmond and on to Raleigh and Charlotte, NC. It will also expand east from Richmond to Hampton Roads.
- Virginia and North Carolina continue to advance high speed rail in the Southeast High Speed Rail corridor. In October 2002, the Tier I Environmental Impact Statement (EIS) was completed from Washington, DC to Charlotte, NC. In December 2005 Virginia and North Carolina began the Tier II EIS through the allocation of Virginia Rail Enhancement funds to extend the project work from Raleigh, NC to Richmond. As this project advances through the environmental process, additional work is necessary for the completion of the Tier II EIS for railway and associated highway improvements for the proposed 168-mile corridor between Richmond and Raleigh, NC.
- The Commonwealth's contributions toward the Southeast High Speed Rail Project will:

- Evaluate a high speed rail connection between Hampton Roads and Richmond's Main Street Station.
- Evaluate high speed passenger rail service on the designated high speed rail corridor from Raleigh, NC through Richmond to Washington, DC.
- Provide passengers with a more cost-effective, competitive alternative to air travel.
- Connect Virginia to the Northeast Corridor, the only active high speed rail corridor operating in North America.

11.3.3.2. Project Management

- The Commonwealth, Amtrak, CSX and Norfolk Southern will coordinate all project-related rail improvements and operations.
- The project will be managed through a public-private partnership between the Commonwealth, North Carolina, CSX, Norfolk Southern and federal partners.

11.3.3.3. Project Phasing

- Phase I - Environmental Studies
  - $4 M ($4 M YOE) total project cost ($2.3 M state)
  - Complete the Tier II Environmental Impact Statement (EIS) and seek a federal Record of Decision for railway and associated highway design in the corridor from Richmond Main Street Station to Raleigh, NC.
  - Complete the Richmond/Hampton Roads Tier I Draft EIS.
- Phases II and III - Construction and Improvements
  - $1,713.7 M ($2,076.6 M YOE) total project cost (unfunded)*
  - Engineering, track construction and improvements from Washington, DC to the North Carolina state line for high speed rail service.

11.3.3.4. Project Cost

Total project cost: $1,717.7 million ($2010)

- Proposed FY2009 – FY2015 Improvement Plan – $4 M total project cost for completion of Phase I from FY09-FY15 ($2.3 M state).
- Phases II and III are unfunded needs identified in the Statewide Rail Resource Allocation Plan, which are proposed for funding in future years.
- Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction and nongovernmental funding sources.
- Project completion and service implementation dates are subject to the availability of funding and contract negotiations with public and private partners. All capital costs are based on the most recently available estimates, expressed in 2010 dollars.

- All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.

- Not included in this project cost is the funding necessary for the Richmond to Hampton Roads passenger rail service. These costs will be completed in the Richmond to Hampton Roads Tier I EIS.

  **All marked items require operating funds in addition to the capital costs noted in this document.*

11.3.3.5. Annual Benefits

- Removes over 1.1 million cars from Virginia and North Carolina highways
- Saves over 5.6 million gallons of fuel
- Saves 34 thousand tons CO2 emissions

11.3.3.6. Partnership Opportunities

The Southeast High-Speed Rail project will require a public private partnership between the Commonwealth, North Carolina, Amtrak, CSX, Norfolk Southern and Federal partners.

11.3.4. I-81/Route 29 Intercity Passenger Rail Project

The proposed I-81/Route 29 Intercity Passenger Rail Project will help manage highway congestion and improve mobility along the Route 29, I-81 and Route 460 corridors. The project consists of improved travel times, more frequent service to Lynchburg and Charlottesville and expanded service to Roanoke, Bristol and Richmond. The Norfolk Southern, the Commonwealth, Amtrak and VRE will need to coordinate improvements and operations in the corridor given that VRE long range plans may also include service extensions along this corridor.

Figure 11-6 illustrates the proposed routing for the I-81/Route 29 Intercity Passenger Rail Project.

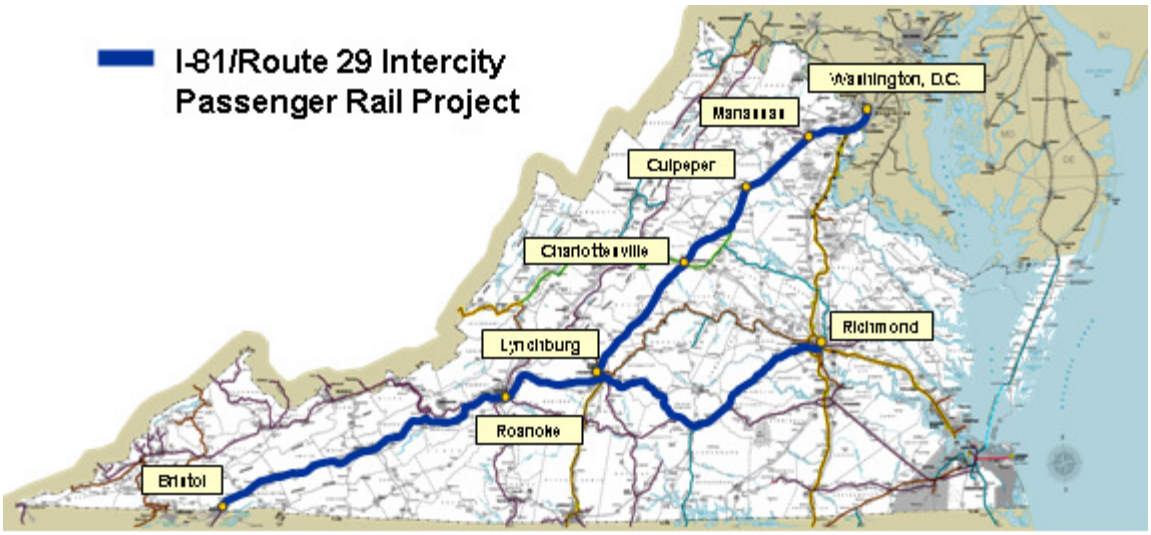


Figure 11 - 6 I-81/Route 29 Intercity Passenger Rail Project

11.3.4.1. Key Facts

- This project provides incremental service improvements to enhance passenger rail service in Central and Southwestern Virginia.
- Annual Amtrak ridership in this corridor totaled 50,554 in 2007. With this new regional service, annual ridership could increase by between 185,400 and 243,500 annual passengers by 2030.
- To enhance passenger rail service along the Route 29, Interstate 81 and Route 460 corridors, the I-81/Route 29 Intercity Passenger Rail Project will:
  - Add new passenger rail service to Lynchburg, Roanoke and Bristol with connections to Richmond and Washington, DC.
  - Construct new stations to support the new service.
  - Increase capacity through new passing tracks.
  - Reduce travel time by improving rail infrastructure for higher speeds.

11.3.4.2. Project Management

- The project will be managed through a public-private partnership between the Commonwealth, Norfolk Southern, Amtrak and federal partners.
- The Commonwealth, Amtrak, Norfolk Southern and VRE will need to coordinate improvements and operations in the corridor.

11.3.4.3. Project Phasing

- Phase I - Washington, DC/Lynchburg
  - $40.7 M ($41.3 M YOE) total project cost ($30.6 M state share)*

- Add one daily train between Washington, DC and Lynchburg Kemper Street Station as a demonstration project for three years beginning in 2009.
- Increase commuter capacity in the VRE service area.
- Complete the capacity study for the entire project corridor from Washington, DC to Bristol and Lynchburg.
- Increase capacity for a second train to Lynchburg with construction of second main line track between Nokesville and Calverton.

- Phase II - Capacity/Stations Roanoke
  - $105.9 M ($117.2 MYOE) total project cost (unfunded)*
  - Add one additional train to extend service to Roanoke.
  - Increase capacity and service reliability from Lynchburg to Roanoke.
  - Improve the Roanoke Train Station and train storage facility.
- Phases III and IV - Capacity/Stations Bristol/Richmond
  - $64 M ($115.6 M YOE) total project cost ($45.5 M state)*
  - Add one train to Bristol from Roanoke, including one train set and capacity improvements.
  - Provide train service from Bristol to Richmond and from Bristol to Washington, DC.

11.3.4.4. Project Cost

Total project cost: $210.6 million ($2010)

- Proposed FY2009 – FY2015 Improvement Plan– $40.7 M total project cost for completion of Phase I from FY10-FY15 ($30.6 M state).
- Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction and nongovernmental funding sources. Project completion and service implementation dates are subject to the availability of funding and contract negotiations with public and private partners.
- Phases II, III and IV represent unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.
- All capital costs are based on the most recently available estimates, expressed in 2010 dollars.
- All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.

*All marked items require operating funds in addition to the capital costs noted in this document.

11.3.4.5. Annual Benefits

- Removes 203 thousand cars from I-81 & Rte 29 corridors
- Saves 2 million gallons of fuel
- Saves 15 thousand tons CO2 emissions

11.3.4.6. Partnership Opportunities

The I-81/Route 29 Intercity Passenger Rail Project will require a public private partnership between the Commonwealth, Norfolk Southern, Amtrak and federal partners, given that this project is located within the area of freight rail projects identified by Norfolk Southern for the Heartland, Crescent and Coal corridors.

11.4. Class I Railroad Improvements

The projects presented in this section total $1.8 billion for both Class I and shortline railroads (Figure 11-7).

Class I and Shortline Railroad Project Costs	
Project	Costs
NS	$ 1,700 million
CSX	$ 48.0 million
Total Costs	**$ 1.748 million**

Figure 11 - 7 Summary of Class 1 Project Costs

11.4.1. National Gateway Project

The National Gateway project is designed to improve the efficiency of freight rail shipping for the Mid-Atlantic ports of Baltimore, MD, Virginia, and Wilmington, NC and the markets in Pennsylvania, West Virginia, Ohio and other Midwestern states. The project extends through six states and the District of Columbia and consists of approximately $700 million in projects to expand capacity and provide clearance for double-stack intermodal trains, improving the flow of international and domestic freight between these regions. Included in the National Gateway are the expansion of several existing intermodal facilities and construction of new facilities to manage current and projected demand for freight movement along the corridor. At CSX's request, a cost benefit analysis for the project and estimates that the diversion of truck traffic to rail will range from 186,000 (moderate scenario) to 375,000 truckload equivalents (aggressive scenario) on an annual basis if the improvements are implemented.

Figure 11 – 7 depicts the project.

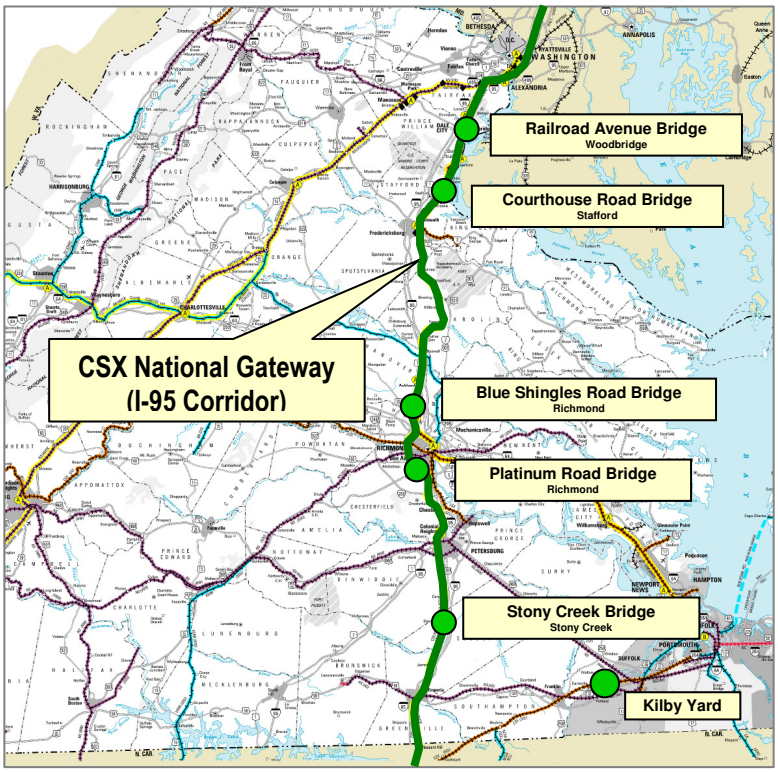


Figure 11 - 8 National Gateway Project

11.4.1.1. Key Facts

- The multi-state National Gateway Project extends from North Carolina to Ohio and parallels I-95 through Virginia, with a connection to the Port of Virginia.
- The diversion of freight from highway to rail will benefit from a multi-state initiative involving federal, state, local and private partners.
- The project plan focuses on improving clearances to enable double stack intermodal train operations.
- To improve the efficiency of freight rail shipping for the mid-Atlantic ports of Baltimore, MD, Virginia and Wilmington, NC and markets in Pennsylvania, West Virginia, Ohio and other Midwestern states, the National Gateway Project will:
  - Divert freight traffic from highway to rail and double the capacity for freight shipments in the I-95 corridor by providing double-stack clearances for freight containers.
  - Increase capacity and service reliability through Washington, DC to allow more trains to operate in this heavily congested part of the corridor.
  - Support the enhancement of VRE and Amtrak service in the I-95 corridor.

- Add a new freight yard to support increased container traffic originating at Virginia's Ports.

11.4.1.2. Project Management

- The Commonwealth, CSX and VRE will coordinate all project-related rail improvements and operations.
- The project will be managed through a public-private partnership between the Commonwealth, CSX, federal partners and other states.

11.4.1.3. Project Phasing

- Phase I - Capacity Improvements
  - $135.7 M ($149.1 M YOE) total project cost ($25 M state)
  - Adds corridor double stack clearance capacity by removing or modifying five bridges that obstruct the vertical clearance needed for double stack rail operations on the I-95 Corridor between the North Carolina state line and Washington, DC.
  - Environmental studies and preliminary engineering for two new highway grade-separated bridges.
  - Engineering, design and construction of the new double stack Virginia Avenue Tunnel.
- Phase II - Clearance Completion
  - $5.9 M ($6.8 M YOE) total project cost (unfunded)
  - Completes Virginia Avenue Tunnel double stack clearance and bridge clearance work.
- Phase III - Freight Yard Capacity
  - $46.4 M ($47.0 M YOE) total project cost (unfunded)
  - Additional yard capacity at Kilby Yard in Suffolk to enhance container shipping service.
  - Federal and multiple state partnerships are required to reach project objectives.

11.4.1.4. Project Cost

Total project cost: $188 million ($2010 dollars)

- Proposed FY2009 – FY2015 Improvement Plan – $135.7 M total project cost for Phase I completion from FY10-FY15 ($25 M state).
- Phases II and III represent unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.

- Assuming no availability of federal funds other than those assumed by CSX, the total project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction and nongovernmental funding sources. Project completion and service implementation dates are subject to the availability of funding and contract negotiations with public and private partners.

- All capital costs are based on the most recently available estimates, expressed in 2010 dollars.

- All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.

11.4.1.5. Annual Benefits for Virginia

- Removes 260,000 trucks from I-95 corridor
- Saves 32 million gallons of fuel
- Saves 62 thousand tons of CO_2 emissions

11.4.1.6. Partnership Opportunities

The National Gateway project will require a federal, multi-state and private partnership given the project's potential benefits of supporting increased passenger and freight rail operations along the I-95 Corridor. The public benefit analysis included all of CSX's proposed projects for the multi-state initiative, including the cost of the Virginia Avenue Tunnel. In order to advance the project in Virginia, the Commonwealth and CSX will have to reach an agreement on project scope, costs and allocation of costs between partners.

11.4.2. Crescent Corridor Project (I-81, I-20, I-40, I-75 and I-85)

The multi-state Crescent Corridor extends from New Orleans, LA to the Port of New York/New Jersey. The Virginia portion is depicted in Figure 11-4. The Crescent Corridor project is designed to improve the efficiency of freight rail shipping along the following significant and congested highways: I-20, I-40, I-75, I-85 and I-81.

The Norfolk Southern Crescent Corridor in Virginia extends along I-81 from the West Virginia border in the north to the Tennessee border in the south, from Washington, DC to Front Royal along the I-66 Corridor and from Manassas to Danville along the Route 29 Corridor. Norfolk Southern's intermodal trains on the Route 29 Corridor travel primarily north and south from Atlanta, GA and Charlotte, NC to Harrisburg, PA. Intermodal trains following the I-81 corridor travel primarily north and south from the Gulf coast and the Knoxville, TN and Birmingham, AL areas. Norfolk Southern also connects with major intermodal carriers at Memphis, TN and Shreveport, LA via the Kansas City Southern Railway. The success of truck diversion on the Crescent Corridor depends on a multi-state initiative involving an array of federal, state, local and private partners.

The corridor has two distinct rail lines in Virginia that parallel I-81. They will be improved to increase rail capacity. This additional capacity will enhance rail operations so that more trucks can be diverted from the heavily traveled I-81 corridor. About a third of I-81 Crescent Corridor traffic flows between terminals in Tennessee and the Northeast. These trains will utilize the Shenandoah Route, which will require additional capacity in FY2009 and future years.

Figure 11 – 9 depicts the project.

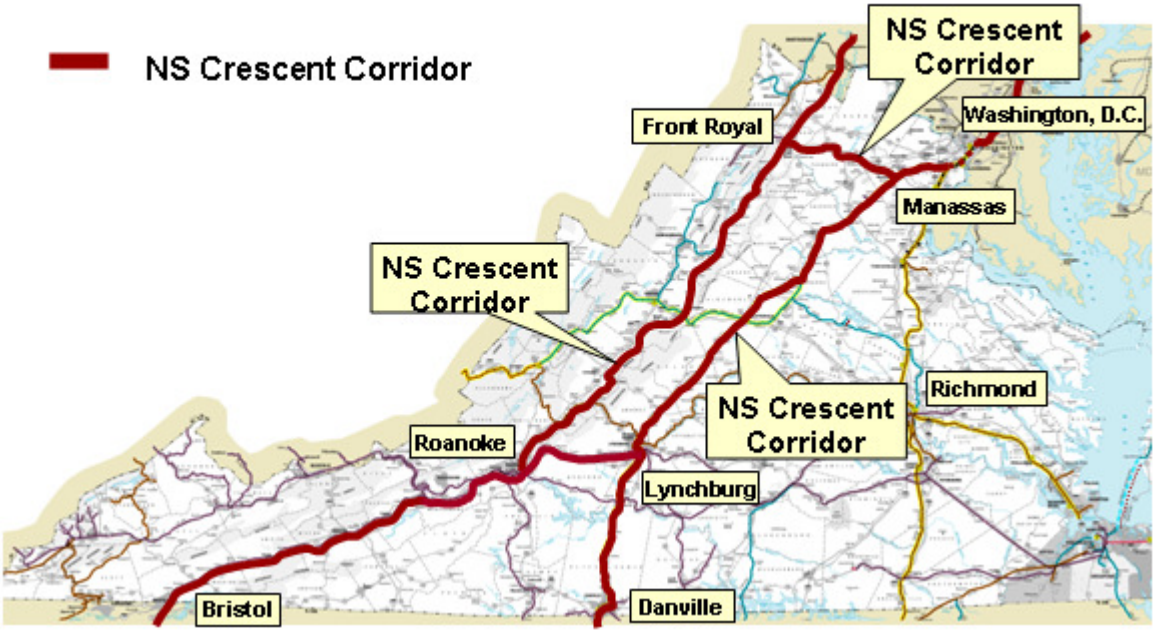


Figure 11 - 9 Crescent Corridor

11.4.2.1. Key Facts

- The multi-state Crescent Corridor extends from New Orleans/Memphis to New Jersey.
- The success of truck diversion on the Crescent Corridor depends on public private partnerships with multiple states and will involve federal, state, local and private parties.
- In Virginia, the corridor has two distinct rail lines paralleling I-81 that will be used together to increase rail capacity.
- To improve the efficiency of freight rail shipping and provide highway congestion relief in Virginia, the Crescent Corridor Project will:
  - Divert freight shipments from highway to rail along I-20, I-40, I-75, I-85, I-81 and Route 29.
  - Expand rail capacity.
  - Facilitate the expansion of Amtrak service to Charlottesville, Lynchburg, Roanoke and Bristol.
  - Support the enhancement of VRE service from Manassas to Gainesville/Haymarket.

11.4.2.2. Project Management

- The Commonwealth, Norfolk Southern and the I-81 corridor states will need to coordinate resources to fully develop this project. A multi-state agreement and a federal funding partner are essential to advance this initiative.

- The project will be managed through a public-private partnership between the Commonwealth, Norfolk Southern, federal partners and other states.

11.4.2.3. Project Phasing

- Phase I - Priority Capacity Improvements
  - $38 M ($38 M YOE) total project cost ($26.6 M state)
  - Preliminary engineering and construction of the top four priority capacity projects located near Berryville, Elkton, Bentonville and Stanley.
  - Completion of Manassas to Front Royal capacity improvements.
- Phase II - Secondary Capacity Improvements
  - $82.2 M ($82.7 M YOE) total project cost (unfunded)
  - Additional capacity and reliability improvements on the Shenandoah, Piedmont, Manassas, Heartland and Bristol lines.
- Phase III - Remaining Capacity Improvements
  - $394 M ($418.7 M YOE) total project cost (unfunded)
  - Remaining capacity, train reliability, and speed improvements on the Shenandoah, Piedmont, Manassas, Heartland and Bristol lines.

11.4.2.4. Project Cost

Total project cost: $514.2 million ($2010)

- Proposed FY2009 – FY2015 Improvement Plan– $38 M total project cost to complete Phase I from FY10-FY15 ($26.6 M state).
- Phases II and III represent unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.
- Assuming no availability of federal funds, the project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction and nongovernmental funding sources. Project completion and service implementation dates are subject to the availability of funding and contract negotiations with public and private partners.
- All capital costs are based on the most recently available estimates, expressed in 2010 dollars.
- All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.

11.4.2.5. Annual Benefits for Crescent Corridor in Virginia (Phases I and II)

- Removes 592 thousand trucks from the I-81 corridor by 2035

- Saves over 94 million gallons of fuel
- Saves 210 thousand tons of CO_2 emissions

11.4.2.6. Partnership Opportunities

The Crescent Corridor project will represent an opportunity for a federal, multi-state and private partnership, given the project's potential benefits of supporting increased passenger and freight operations along the I-81 corridor and other major corridors outside of Virginia. The public benefits of this project are being further defined in the I-81 Freight Rail Study analysis, to be completed in Spring 2009. The proposed projects in Virginia result in truck diversion benefits from the implementation of a multi-state freight rail initiative. The Commonwealth and Norfolk Southern will have to reach an agreement on project scope, costs and the allocation of costs between partners that will support improvements for both passenger and freight rail.

11.4.3. Heartland Corridor Project

The Heartland Corridor will double freight rail capacity along the line that parallels Route 460 through Virginia and significantly improve the freight shipping time to markets in the Midwest. The project includes raising tunnel clearances and the development of intermodal facilities in the Roanoke region, Prichard, WV and Rickenbacker, OH. The project will increase capacity and save 1.5 days over the current shipping time between Hampton Roads and Chicago, IL. The Heartland Corridor in Virginia is comprised of the Norfolk Southern mainlines from the Port of Hampton Roads across the southern half of the state through Petersburg and Roanoke and on to Bluefield, roughly paralleling Route 460. Coal, intermodal and merchandise trains use the Route 460 Corridor. In addition, Norfolk Southern, DRPT and Amtrak are exploring the possibility of new passenger rail service between Alexandria and Bristol that will use part of this corridor from Lynchburg to Walton, near Blacksburg.

To date, the Commonwealth has committed $22.35 million towards the Virginia projects. Work is underway to raise the height of four tunnels in Virginia to support double-stack operations. The location of an intermodal facility in the Roanoke Region is being discussed and the scope of the project may potentially be expanded to support improved access to the facility if this element of the project advances. The advancement of the intermodal facility will require an additional $6.3 million for access improvements.

As an addition to the initial Heartland Corridor project, Norfolk Southern has begun to identify Phase 2 projects, including the development of a parallel double-stack route from Altavista to Roanoke, clearance of the Montgomery Tunnel mainline, track capacity improvements near Farmville and the City of Suffolk and the development of an intermodal facility in Prince George County. These proposed Phase 2 projects total $59.71 million. DRPT will continue to work with Norfolk Southern to evaluate these proposed projects for potential future funding.

Figure 11 – 10 depicts the project.

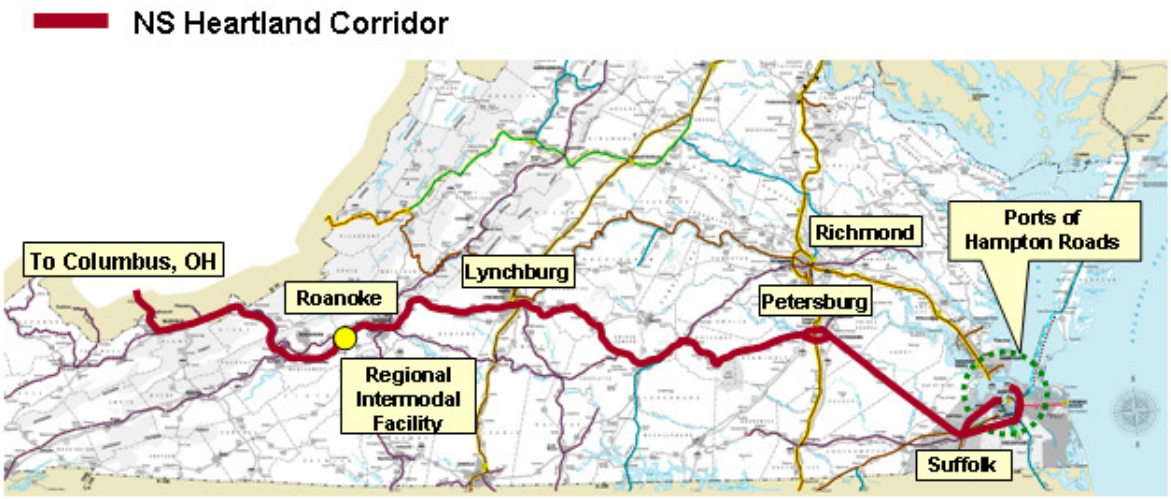


Figure 11 - 10 Heartland Corridor

11.4.3.1. Key Facts

- The Heartland Corridor will double the intermodal rail capacity along Route 460 and significantly improve freight shipping between markets in the Midwest.
- This initiative has been identified as a project of national significance.
- Norfolk Southern, DRPT and Amtrak are exploring the possibility of new passenger service between Bristol, Lynchburg and Washington, DC along part of this corridor.
- To improve freight service between the Ports of Virginia and markets in the Midwest along the Route 460 and I-81 corridors, the Heartland Corridor project will:
  - Complete highway access improvements needed for the Roanoke Region Intermodal Facility, a regional initiative to generate up to 2,900 jobs and up to $71 million in tax revenues annually.
  - Increase tunnel clearances to provide redundant routes on sections of the corridor that host freight and passenger operations.

11.4.3.2. Project Management

- The project will be managed through a public-private partnership between the Commonwealth, Norfolk Southern, federal partners and other states.

11.4.3.3. Project Phasing

- Phase I - Access Improvements
  - $18.1M ($18.1 M YOE) total project cost ($12.7 M state)
  - Relocation of Cove Hollow Road to improve access to the facility.
  - Completes intermodal facility funding based on final selected site costs.
- Phase II - Clearance Improvements

- $9.6 M ($10.4 M YOE) total project cost (unfunded)

- Added corridor double stack capacity through improving the clearance of second main line Montgomery Tunnel.

11.4.3.4. Project Cost

Total project cost: $27.7 million ($2010)

- Proposed FY2009 – FY2015 Improvement Plan– $18.1 million total project cost to complete Phase I from FY10-FY15 ($12.7M state).

- Phase II represents unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.

- Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction and nongovernmental funding sources. Project completion and service implementation dates are subject to the availability of funding and contract negotiations with public and private partners.

- All capital costs are based on the most recently available estimates, expressed in 2010 dollars.

- All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.

11.4.3.5. Phase Project Annual Benefits (Phases I and II)

- Removes 150 thousand trucks from Virginia highways
- Saves 20 million gallons of fuel
- Saves 32 thousand tons of CO_2 emissions

11.4.3.6. Partnership Opportunities

A public private partnership has been executed to support Phase 1 of the project, which was designated as a project of national significance. Additional projects under Phase 2 are under review. The Commonwealth and Norfolk Southern will have to reach an agreement on project scope, costs and the allocation of costs between partners that will support improvements for both passenger and freight rail.

11.5. Shortline Railroads

The Shortline Railroad needs and program development are discussed in greater detail in Chapter 12 of the VSRP.

11.5.1. Shortline Railroad Preservation (Statewide)

11.5.1.1. Key Facts

- The Commonwealth has determined that it is in the public interest for shortline railways to be preserved due to the value that they deliver for Virginia businesses and for passenger rail service.

- Shortline railroads connect commercial and industrial business to Class I railroads and, in the case of the Buckingham Branch Railroad, serve as the host railroad for Amtrak service.
- The Rail Preservation program assists in moving over 609,900 annual railcars and removing over 2.14 million trucks off of Virginia's highways.
- The Shortline Railroad Preservation Program will:
  - Identify and establish a cyclical program to preserve Virginia's shortline rail network to a minimum of the Federal Railroad Administration's Class 2 track standards for freight only shortlines and Class 4 track standards for shortlines hosting passenger trains and some of the freight only shortlines.
  - Work to bring all of Virginia's shortline railroads into conformance with these track standards will cost approximately $252 million over the next 30 years. Shortline railroad also have specific project needs that have been identified, totaling $193 million. Figure 4-6 illustrates both the program and project needs for each shortline railroad. It should be noted that there may be other needs associated with bridges that have not yet been fully evaluated.

11.5.1.2. Project Cost

- The cyclical program for routine items is centered on a 6 year cycle of tie replacement, track surfacing and lining, selective rail replacement, and drainage work that would bring the railroads to a desired condition in 30 years. Each 6 year cycle is anticipated to cost $41.85 million, with a total 30 year cycle cost of $209.25 million.
- While the cyclical program addresses the programmatic needs there are discrete project needs that will be required to be met to have the railroads at the desired conditions. The project needs are anticipated to cost $49.4 million over the next 6 years. The project needs will continue at approximately the same level out to the 30 year planning horizon resulting in a 30 year total cost of $250 million.
- The total shortline railroad cost for the programmatic and project needs are $460 million over the next 30 years.

11.5.1.3. Annual Benefits

- There is no statutory requirement for performance benefits within the Rail Preservation Program.
- The Rail Preservation program assists in moving over 609,900 annual railcars and removing over 2.14 million trucks off of Virginia's highways.

Partnership Opportunities
Improvements to the shortline railroad system will require a public private partnership between the Commonwealth and the shortline operators. The shortline railroads are required to achieve specific performance goals for truckload equivalents hauled, maintain rail improvements supported by the Commonwealth and provide a minimum match of 30 percent of the total project cost.

11.6. Port Improvements

The rail improvement projects presented in this section total $178.9 million (Figure 11-12). Improving rail capacity at the Ports of Hampton Roads supports increased truck to rail diversion and provides economic benefit to the Commonwealth by reducing transportation costs for both domestic and international trade.

Ports of Hampton Roads Project Costs	
Project	Costs
NIT Central Rail Yard Expansion	$ 40.15 million
Craney Island Rail connections	$ 130.0 million
Norfolk & Portsmouth Beltline Railroad	$ 8.75 million
Total Costs	**$ 178.9 million**

Figure 11 - 11 Summary of Ports of Hampton Roads Project Costs

11.6.1. Port-Related Rail Improvement Project

Figures 11 – 12 through 11 – 14 depict the projects that make up the overall project.

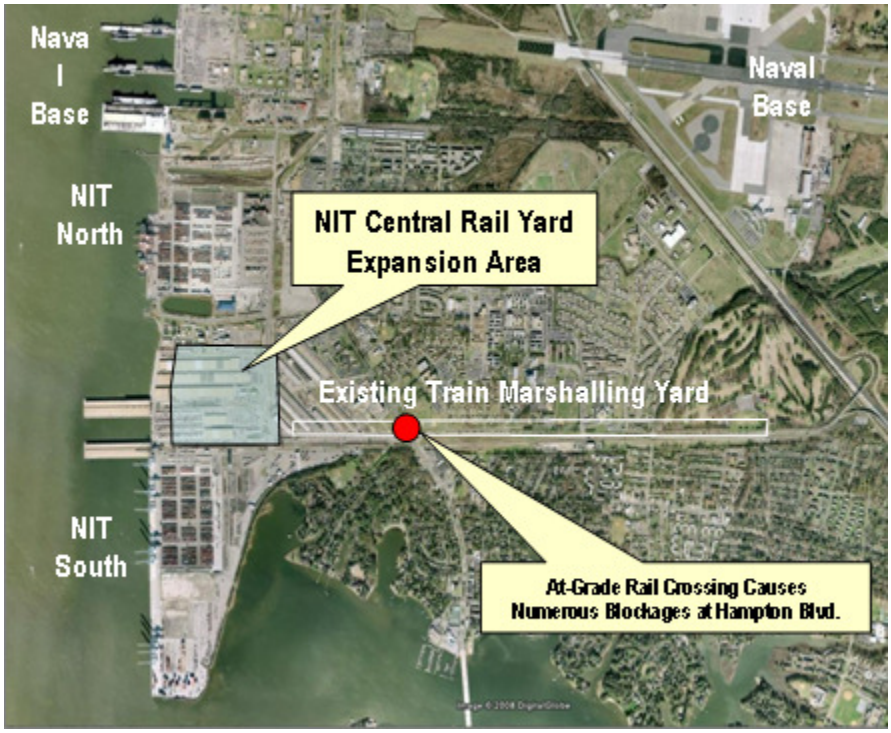


Figure 11 - 12 Norfolk International Terminal On-dock (Central) Railyard

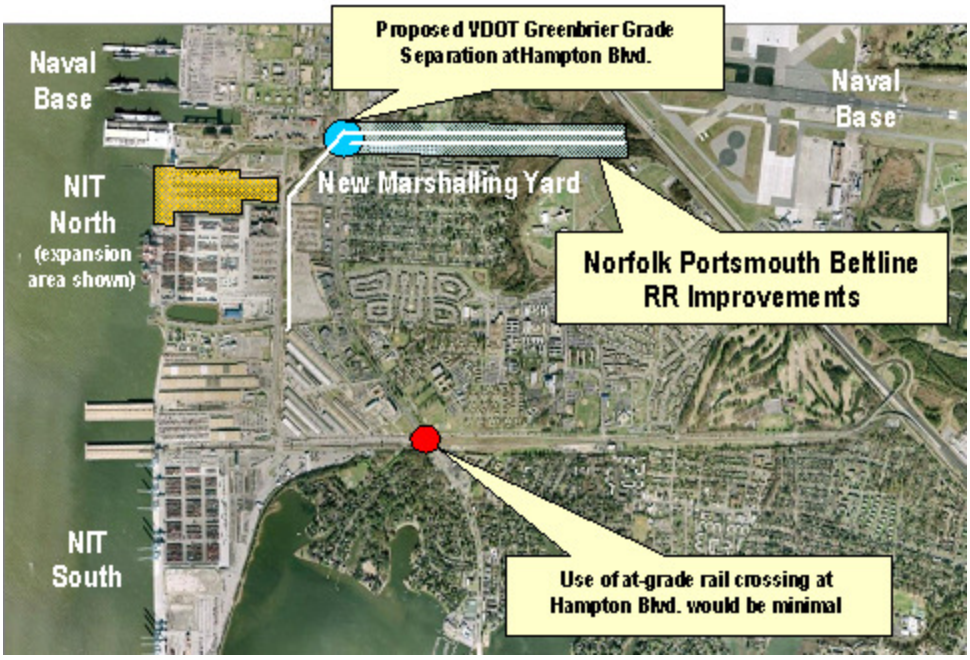


Figure 11 - 13 Norfolk and Portsmouth Belt Line rail yard

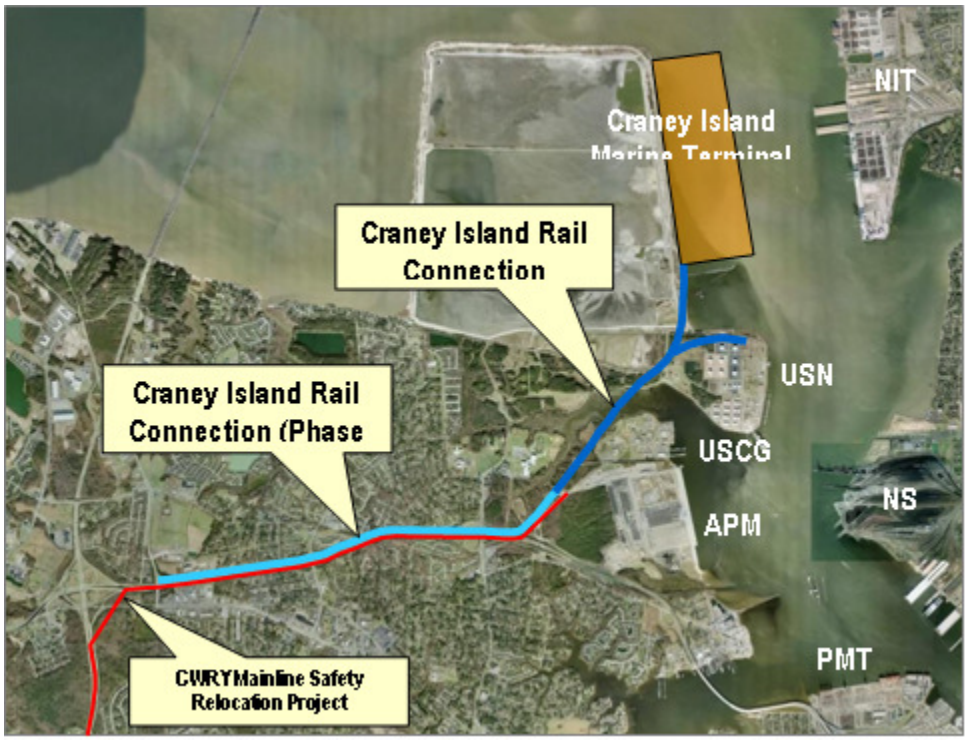


Figure 11 - 14 Craney Island

11.6.1.1. Key Facts

- The project will double the on-dock rail capacity at Norfolk International Terminals with an on-dock rail yard.
- Additional yard capacity improvements will enhance highway grade crossing safety and reduce highway delays at grade crossings.
- The proposed Craney Island marine terminal will transport 50 percent of the projected 1.43 million rail container activity associated with this project.
- To improve rail capacity at the Ports of Hampton Roads, support increased freight truck to rail diversion and provide economic benefits to the Commonwealth by reducing transportation costs for both domestic and international trade, the Port-Related Rail Improvement Project will:
  - Provide competitive rail access to Virginia's ports to ensure that shippers and consumers benefit from cost-effective transportation choices.
  - Relocate rail lines serving the ports to enhance safety.
  - Increase container and train handling capacity to streamline freight handling.
  - Increase rail capacity to allow more containers to be diverted to rail.

11.6.1.2. Project Management

The project will be managed through a public-private partnership between the Commonwealth, the ports and the operating railroads.

11.6.1.3. Project Phasing

- Phase I - Yard Improvement Engineering
  - $2.2 M ($2.2 M YOE) total project cost ($0.8 M state)
  - Preliminary engineering of capacity improvements to the Norfolk International Terminals on-dock rail yard.
  - Preliminary engineering of capacity improvements to the Norfolk and Portsmouth Belt Line rail yard
- Phase II - Yard Improvement Construction
  - $41.7 M ($41.8 M YOE) total project cost (unfunded)
  - Construction of capacity improvements to the Norfolk International Terminals on-dock rail yard.
  - Construction of capacity improvements for the Norfolk and Portsmouth Belt Line yard to relocate train movements to a grade separated crossing.
- Phase III - Craney Island Connector
  - $20.2 M ($20.8 M YOE) total project cost (unfunded)
  - Additional capacity and access improvements for the Craney Island Terminal.

- Construction of a second main line track in the median of Route 164.
- Preliminary engineering and design of the Craney Island Rail Connector track.

11.6.1.4. Project Cost

Total project cost: $64.1 million ($2010)

- Proposed FY2009 – FY 2015 Improvement Plan- $2.2 M total project cost for completion of Phase I from FY10-FY15 ($0.8 M state).
- Phases II and III represent unfunded needs identified in the Rail Resource Allocation Plan, which are proposed for funding in future years.
- Project costs will be funded through a combination of available federal, state, private railroad, local jurisdiction and nongovernmental funding sources. Project completion and service implementation dates are subject to the availability of funding and contract negotiations with public and private partners.
- All capital costs are based on the most recently available estimates, expressed in 2010 dollars.
- All costs and schedules are based on preliminary planning estimates and are subject to revision as additional information becomes available.

11.6.1.5. Annual Benefits

- Removes 180 thousand trucks from Virginia's highways
- Saves over 24 million gallons of fuel
- Saves 47 thousand tons of CO2 emissions

11.6.1.6. Partnership Opportunities

The NIT Central Rail Yard Expansion project will require a public private partnership between the Commonwealth and Virginia International Terminals, a non-profit terminal operating company that is a subsidiary of the Virginia Port Authority (VPA). Any agreement executed with VPA will incorporate container growth and performance requirements over time.

12. SHORTLINE IMPROVEMENT PROGRAM

12.1. FRA Requirements

This Chapter of the Virginia Statewide Rail Plan (VSRP) references appendix C for the Statewide Shortline Railroad Improvement Plan Technical Memorandum dated November 2, 2009. This Technical memorandum contains the information related to improvements to Virginia's entire rail system as required by 49 CFR § 266.15 (c)(6)(i), 49 CFR § 266.15 (c)(6)(iii), 49 CFR § 266.15 (c)(7), 49 CFR § 266.15 (c)(8), 49 CFR § 266.15 (c)(9) and 49 CFR § 266.15 (c)(9)i.

The requirement of 49 CFR § 266.15 (c)(6)(i) is fulfilled by the narratives in the referenced Technical Memorandum describing each railroad and Table 1.

The requirement of 49 CFR § 266.15 (c)(6)(iii) is fulfilled by the narratives accompanying each project description in the referenced Technical Memorandum.

The data required by 49 CFR § 266.15 (c)(7) is presented in the referenced Technical Memorandum in section F Rail Preservation Fund.

The data required by 49 CFR § 266.15 (c)(8) is presented in the referenced Technical Memorandum in Table 6,.and the narratives accompanying each project description.

The requirement of 49 CFR § 266.15 (c)(9) is fulfilled in the referenced Technical Memorandum by Table 6.

The requirement of 49 CFR § 266.15 (c)(9)(i) is fulfilled in the referenced Technical Memorandum by Table 6 and the Rail Resource Allocation Plan.

13. CONCLUSION

This Statewide Rail Plan identifies high priority projects and recommended funding allocations for implementation of rail improvements in the Commonwealth for both short term and long term planning horizons including potential FRA ARRA grants.

13.1 Future Rail Plan Updates

13.1.1 Commonwealth Statewide Rail Plan Updates

It is DRPT's intent that the Statewide Rail Plan will be updated on a major basis every five years, with annual reviews conducted in accordance with FRA requirements. The Six-Year Improvement Program will be reviewed on an annual basis to:

- Evaluate rail transportation changes in the context of a multimodal transportation system – particularly passenger rail services (including high speed rail) and intermodal movements through the Ports of Hampton Roads.

- Respond to any Commonwealth or FRA ARRA grants of High-Speed Passenger rail funding programs, safety and security, reporting, environmental and funding program changes.

- Review implementation of rail plan priorities based on the following transportation goals:
  - Safety and Security
  - Preservation and Management
  - Mobility, Accessibility and Connectivity
  - Economic Vitality and Development
  - Land Use and Quality of Life

- Evaluate new technologies that could be implemented for rail improvements

13.1.2 Federal Railroad Administration Annual Review Requirements

In accordance with Federal Railroad Administration (FRA) requirements (CFR Sec. 266.15 FRA Requirements for State Rail Plan – [d], [d.1] updates, revisions and amendments), the Commonwealth will review the Statewide Rail Plan on at least an annual basis for potential updates, revisions and amendments and prepare an annual report to FRA summarizing the review. Any changes to the adopted plan will be subject to the same review procedures by the Commonwealth and FRA as the original plan.

The contents of the Commonwealth's annual report to FRA on the Statewide Rail Plan shall include the following (CFR Sec. 266.15 FRA Requirements for State Rail Plan – [d.2], [d.2.i] through [d.2.vii] updates, revisions and amendments):

- A response to unanswered FRA comments on previously submitted updates, revisions, amendments, or the original State Rail Plan;

- An update of information in previous submittals which is no longer accurate as a result of plan implementation, action by a governmental entity or railroad, or changed conditions;
- For lines receiving rail service continuation assistance, inclusion of revenue and cost information from the past year's operating experience and a reevaluation of service based on these new data;
- Updating of the maps and descriptions required under paragraph CFR Sec. 266.15 FRA Requirements for State Rail Plan [c.2];
- Analysis of any new projects developed by the State in accordance with paragraphs CFR Sec. 266.15 FRA Requirements for State Rail Plan [c.4], [c.5] and [c.6];
- Changes in agency responsibilities and authority including ability to provide the non-Federal share; and
- Revisions in the State's policies, objectives or long-range expectations.

13.2 Conclusion

As the preceding chapters have pointed out, rail is vital for the Commonwealth's economy, connecting Virginia to the global marketplace both overseas through connections at the Ports of Hampton Roads and in North America through rail connections that extend to the nation's East and West Coasts, north to Canada and south to Mexico.

Virginia's rail system faces a challenging future. This is due to several factors:

- Population in the U.S. is growing, and the Commonwealth's economic viability is drawing an even larger percentage increase than that of the nation overall. This means more crowded roadways, greater need for increasingly expensive fuel, increased demand for goods and services and a concern for maintaining natural resources and the environment.
- Passenger rail is seeing increasing demand in Virginia, particularly in its major metropolitan areas (Northern Virginia, Richmond and Hampton Roads), as congestion, fuel costs and environmental concerns make commuter and inter-city train travel a more attractive option.
- There is also increasing demand for freight rail. Partly this is due to the overall increase in demand for goods, such as coal, that currently use Virginia's rail system. Partly this is due to a desire to move freight from trucks to rail to obtain greater fuel efficiency, address roadway congestion and improve CO_2 emissions.
- Passenger and freight rail share tracks that are owned by private freight railroads. The dual demands of increased passenger and freight rail — which can have competing needs for track availability — have to be managed strategically in order to support and sustain the growth and quality of life to which the Commonwealth is committed.

By thinking in terms of an integrated multimodal transportation corridor network, the Commonwealth has accomplished much to meet these challenges, from rail line improvements and expansion to the establishment of a dedicated funding source. This

Statewide Rail Plan presents rail needs for the future that build on past achievements, with a focus on identifying key corridors and potential investments.

Given the costs of projects and limited public funding available, partnerships and collaboration will be the key to moving projects from dreams to operation. The Commonwealth is committed to enhancing partnerships with the private sector, including railroads, local governments and regional planning organizations, to attract private capital and to achieve its strategic goals.

Virginia has an ambitious rail agenda of alleviating congestion and creating a rail system appropriate for future passenger and freight growth. The Commonwealth cannot choose between freight or passenger rail. We need to focus on multimodal solutions for both that support our desire to reduce congestion, support economic prosperity and enhance the quality of life for all Virginians.

14. SOURCES

Sources referenced during the development of the Statewide Rail Plan can be reviewed and downloaded online from the following websites (CFR Sec. 266.15 FRA Requirements for State Rail Plan – [c.1] relevant data sources):

DRPT Core Mission:
http://www.drpt.virginia.gov/about/mission.aspx

DRPT Strategic Plan:
http://www.drpt.virginia.gov/studies/files/DRPT%202007%20Strategic%20Plan.pdf

DRPT Business Plan:
http://www.drpt.virginia.gov/about/DRPT%20Business%20Plan%2010-2007.pdf

DRPT: Amtrak Short Term Action Report
http://www.drpt.virginia.gov/studies/default.aspx

DRPT: 2004 Virginia State Rail Plan (previous state rail plan)
http://www.drpt.virginia.gov/studies/default.aspx

DRPT: Governor's Commission on Rail Enhancement for the 21st Century Report (2004)
http://www.drpt.virginia.gov/studies/default.aspx

DRPT: Washington, D.C / Richmond Third Track Feasibility Study (2006)
http://www.drpt.virginia.gov/studies/default.aspx

DRPT: Washington, D.C. / Richmond Passenger Rail Study
http://www.drpt.virginia.gov/projects/hamptonpassenger.aspx

DRPT: Richmond to Hampton Roads High-Speed Rail Feasibility Study
http://www.drpt.virginia.gov/studies/default.aspx

DRPT: TransDominion Express Rail Study
http://www.drpt.virginia.gov/projects/tdx.aspx

DRPT: Rail Financing in Virginia
http://www.drpt.virginia.gov/about/finance.aspx

DRPT: Rail Funding and Grant Programs
http://www.drpt.virginia.gov/grants/rail.aspx

DCR: Land Conservation Data Explorer
http://www.vaconservedlands.org

VTrans Statewide Multimodal Long-Range Transportation Plan (Phase 3 - Final Report)
http://www.virginiadot.org/projects/vtrans/resources/revisedPhase3Reportforctb.pdf

VTrans Expected Demographic Changes in Virginia's Transportation Demand by 2025
http://www.virginiadot.org/projects/vtrans/resources/VTransTrendsMarch31F.pdf

VTrans Virginia Statewide Multimodal Freight Study, Phase 1 (2008)
http://www.vtrans.org/

VTrans Virginia's Transportation Performance Report (2006)
http://www.vtrans.org/

VDOT I-81 Improvements - Final Environmental Impact Statement & Record of Decision
(Project included truck to rail diversion analysis)
http://www.virginiadot.org/projects/constSTAN-I81-overview.asp

Commonwealth of Virginia: Virginia Employment Commission
(Labor Market Information and Demographic Data)
http://www.vec.virginia.gov/vecportal/index.cfm

Association of American Railroads (Class I freight data and industry statistics)
http://www.aar.org/

American Public Transportation Association (APTA) – Commuter Rail Data
http://www.apta.com/

Amtrak Intercity Passenger Rail Information - Strategic Plan
http://www.amtrak.com/servlet/ContentServer?pagename=Amtrak/am2Copy/Title_Image_Copy_Page&c=am2Copy&cid=1081794202606&ssid=168

Virginia Railway Express (VRE) – Strategic Plan
http://www.vre.org/about/strategic/strategic_plan.htm

Virginia Railroad Association – Information on Virginia's Shortlines
http://www.varail.com/

I-95 Corridor Coalition Mid-Atlantic Rail Operations Study (MAROPS)
http://66.167.232.132/pm/ViewProject.asp?pid=148

Commonwealth of Virginia's "Council on Virginia's Future"
http://www.future.virginia.gov/

CSX Transportation – General Data and Annual Report
http://www.csx.com/?fuseaction=general.main

Norfolk Southern – General Data and Annual Report
http://www.nscorp.com/nscportal/nscorp/

Commonwealth of Virginia's "Virginia Performs"
http://vaperforms.virginia.gov/

USDOT Federal Highway Administration – Freight Management and Operations
http://www.ops.fhwa.dot.gov/freight/

Federal Railroad Administration (FRA) – Freight, Intercity Passenger & High Speed Rail
http://www.fra.dot.gov/

U.S. Census Bureau – Population and Demographic Data
http://www.census.gov/

University of Virginia – Cooper Center (Demographics and Workforce Data)
http://www.coopercenter.org/demographics/

Southeast High Speed Rail Corridor (SEHSR)
http://www.sehsr.org/

AASHTO "Transportation: Invest in America, Freight - Rail Bottom Line Report"
http://freight.transportation.org/doc/FreightRailReport.pdf

AASHTO "Intercity Passenger Rail Transportation"
http://freight.transportation.org/rail_passenger.html#REPORTS

Commonwealth of Virginia DCR "Virginia Outdoor Plan"
http://www.dcr.virginia.gov/recreational_planning/vop.shtml

Operation Lifesaver – Rail Safety Education and Accident Statistics
http://www.oli.org/

Virginia Economic Development Partnership (VEDP)
http://www.yesvirginia.org/

The Virginia Port Authority (VPA)
http://www.vaports.com/

America 2050 – A Prospectus
http://www.america2050.org/2006/09/new_america_2050_prospectus_no.html

AAR National Freight Capacity Study
http://www.aar.org/PubCommon/Documents/natl_freight_capacity_study.pdf

Washington Metropolitan Area Transit Authority (WAMATA) – Planning & Development
http://www.wmata.com/about/expansion/expansion.cfm?fromMenu=AboutMetro.4

Japan Railway Statistics
(Comparison of Passenger and Freight Rail Statistics in different Countries)
http://www.geocities.com/TheTropics/Cove/5750/raildata.html

Other Useful Sources for Virginia Railroad Information:

Railroads of Virginia – Historical Rail Data, Railroad Information, and Links to other Sites
http://www.virginiaplaces.org/rail/

Rails in Virginia – Railroad Photos by Jeff Hawkins and other Virginia railroad resources
http://members.trainorders.com/varailfan/main.html

Virginians for High Speed Rail – Advocacy Organization for High Speed Rail
http://www.vhsr.com/

TransDominion Express – Advocacy Organization for the TDX Project
http://www.tdxinfo.org/

APPENDIX A

Rail Line Abandonments & Rails to Trails

A. RAIL LINE ABANDONMENTS & RAILS TO TRAILS

A.1 Rail Line Abandonments

A list of abandoned rail lines in the Commonwealth is shown in Figures A-1 and A-2 from the period 1970 until June 2008. Railway mileage peaked in Virginia at approximately 4,700 route miles in 1920. Today, there are approximately 3,200 route miles, a loss of roughly 32 percent. Figure A-3 indicates track abandonments and unused rail routes that have occurred in the Commonwealth since the original routes were constructed. Railway mileage continues to decline, although the pace has slowed significantly as much of the unprofitable segments and unneeded capacity have already been abandoned. In the 20 year period between 1970 and 1990, there were 679.81 route miles abandoned in Virginia. In the 16 year period from 1991 to 2007, there were only 132.92 route miles abandoned.

For future rail needs it is critical that the Commonwealth partner with privately-owned railroads to preserve unused and abandoned rail routes wherever possible. As future growth occurs in the Commonwealth, rail lines that may not have been economical in the past may prove to be cost-effective and vital to the public interest in the future. As an example, the proposed Southeast High Speed Rail Corridor in Virginia will utilize an unused rail route from the North Carolina border to Petersburg adjacent to I-85. If the line had been abandoned and the property sold to residential or commercial interests, the Southeast High Speed Rail Project would probably not be feasible under modern environmental requirements.

There are no rail lines in the state which a common carrier has identified as potentially subject to abandonment in the next three years (CFR Sec. 266.15 FRA Requirements for State Rail Plan – [c.3.ii] rail abandonments).

There are no rail lines in the state for which abandonment or discontinuance applications are pending (CFR Sec. 266.15 FRA Requirements for State Rail Plan – [c.3.iv] pending rail abandonments).

RAIL LINE ABANDONMENTS: 1970-1991 (Part 1)

Name of Line	Rail Carrier	Miles Abandoned	Date Abandonment Granted
Buena Vista - Lexington	C&O	8.80	August 24, 1970
Franklin Junction - Franklin	SCL	17.70	November 30, 1970
Kiptopeke Branch	PC	9.80	September 7, 1972
Hot Springs Branch	C&O	22.00	February 12, 1973
Sewells Point Branch	N&W	2.10	November 2, 1973
Broad Street Junction	RF&P	0.50	April 4, 1974
Carfloat, Newport News - Norfolk	C&O	15.40	September 12, 1975
Lindsay - Strathmore	C&O	27.00	October 2, 1975
Entire Line, Broad Street Station	RF&P	6.10	January 7, 1976
Abingdon, Virginia - West Jefferson, North Carolina *	N&W	34.90	July 30, 1976
Diamond Springs - Shelton	NS	1.40	March 22, 1977
Bruce - Portsmouth	SCL	3.90	April 29, 1977
Radford City, Montgomery Co.	N&W	2.40	July 7, 1977
Jarratt - Boaz	N&W	40.00	October 5, 1977
Moccasin Gap - Bristol	SOU	29.00	August 8, 1978
Knitting Mill Branch, Norfolk	N&W	0.20	September 29, 1978
Nurney, Virginia - Tunis, North Carolina *	SCL	8.40	May 8, 1979
Norfolk Branch	N&W	1.20	June 23, 1980
Leets Spur	N&W	5.00	July 31,1980
Carfloat, Newport News - U.S. Naval Operating Base ***	C&O	6.00	September 23, 1980
Carfloat, Newport News - Sewells Point ***	C&O	7.00	September 23, 1980
South Belt Line, Waynesboro	C&O	0.70	August 10, 1981
Virginia State University Spur	SCL	1.00	January 18, 1982
Lynchburg Tunnel Line	N&W	2.20	March 25, 1982
South Hill, Virginia - Blanche, North Carolina *	NF&D	58.60	March 25, 1982
Portion of Hampton Branch Line	C&O	2.00	February 22, 1983
Virginia Central Railway	VCR	1.70	January 23, 1984
Camp Stuart Spur	C&O	0.51	July 27, 1984
Virginia Blue Ridge Railway	VBR	10.00	December 13, 1984
James River-Maury Street (Richmond, Virginia)	SBD	1.30	April 24, 1985
North Carolina Branch and Fries Branch **	N&W	56.80	September 9, 1985
Kenyon - Boaz **	N&W	5.20	September 20, 1985
Chesapeake	NPBL	0.90	November 21, 1985
Suffolk - College Park **	SBD	18.60	December 5, 1985
Old James River Branch (Richmond, Virginia)	SBD	2.10	June 9, 1986
Tacoma - Miller Yard	N&W	10.70	August 15, 1986
Hagans - Shawanee, Tennessee**	CSXT	18.30	January 26, 1987
McKenney - Meredith	CSXT	31.60	February 23, 1987
South Collier - McKenney	CSXT	23.10	January 28, 1987
Meredith - Norlina, North Carolina*	CSXT	11.20	January 29, 1987
Gilley's Creek Interchange (Richmond, Virginia)	C&O	0.90	April 30, 1987
Dayton - Bridgewater	CW	3.70	May 21, 1987
Briery - Jarrett **	N&W	63.60	August 20, 1987
Ringgold - Keysville **	SOU	59.30	January 27, 1988
Fluvanna County (Strathmore)	CSXT	0.50	November 6, 1988
Casanova - Warrenton	SOU	5.10	April 4, 1988
Portsmouth City	CSXT	0.30	May 26, 1988
Lawrenceville - South Hill **	N&W	21.80	February 3, 1989
Leaksville Junction - Axton **	SOU	9.00	March 13, 1989
Leptic - Lynchburg	N&W	3.50	May 22, 1989
Briery - Abilene Connection	N&W	4.80	June 20, 1989
Newport News (Pier 14 - Pier 15)	CSXT	2.00	July 31, 1989
Algren - Kenyon	N&W	12.70	March 19, 1991
TOTAL RAIL LINE ABANDONMENTS 1970-1991		**692.51**	

The abandonment of trackage rights by Southern Railway over the SCL line running from Tarboro, North Carolina to Pinners Point (Portsmouth) on November 26, 1973, is not included.

* Virginia mileage; total mileage in parentheses.

** Designates a Wilbur Smith & Associates Study of Potential Abandonments

*** Carfloat from Newport News served two destinations in Norfolk, VA

Figure A-1. List of Rail Line Abandonments (1992 - 2008)

RAIL LINE ABANDONMENTS 1992 - June 2008 (Part 2)

Name of Line	Rail Carrier	Miles Abandoned	Date Abandonment Granted
Richmond, City	CSXT	0.51	January 13, 1992
Albermarle and Louisa Counties/Lindsay - Whitlock	CSXT	1.71	January 5, 1993
Glade Spring - Saltville/Smyth & Washington Counties *	N&W	8.20	April 5, 1993
South Boston - Clover **	N&W	-14.70	January 14, 1994
Bristol, Virginia - Bristol, Tennessee ***	V&S	0.18	June 2, 1994
Loch Laird - Buena Vista ****	CSXT	2.66	August 26, 1994
Salem - Hanging Rock	N&W	1.58	November 23, 1994
Hilltop - Fieldale	N&W	5.50	November 24,1994
Phoebe - Concord	N&W	1.00	December 1, 1994
Koehler - Fieldale	N&W	1.40	December 14, 1994
Lynchburg - Campbell County	N&W	0.66	December 18, 1994
South Suffolk - Nurney	CSXT	3.81	March 23, 1995
Brown and 17th Streets - Ruffin Piedmont Subdivision	CSXT	3.10	May 27, 1995
Coon Branch - Kilgore Creek (Nora Branch)	CSXT	4.10	August 13, 1995
Kent - Ringgold Sold to Pittsylvania IDA - Rail Banked	NS	1.70	November 18, 1995
Virginia Beach, City	NS	1.70	November 25, 1995
Lynchburg, City	N&W	0.40	February 5, 1996
Dorchester - Dorchester Junction	INTERSTATE	2.60	November 9, 1997
Waynesboro			
Duty - Clinchfield Coal	N&W	3.34	June 3, 1998
Lynchburg, City - Old Main Line	N&W	0.74	June 4, 1998
Wilder-Duty 7.3 mi./Tiller Spur Jct. - Tiller 1.8 mi.	NS	8.06	March 16, 1999
Hagans - Old Cumberland Valley Main Line	CSXT	1.60	November 18, 1999
Winchester WST South End of Main Line, City of Winchester	WW	0.63	January 10, 2001
Long Spur Jct. Buchanan County	NS	0.40	January 3,2002
Dwight to Spruce Pine Buchanan County	NS	2.95	January 4, 2002
Russell Creek to Caledonia Wise County	NS	0.90	January 15, 2002
Derby to Arno Jct. Buchanan County	NS	3.03	January 15, 2002
Kopp Buchanan County	NS	0.63	January 25, 2002
Banner to end of line Buchanan County	NS	0.66	January 31, 2002
Oakwood to Mills Buchanan County	NS	2.23	February 4, 2002
Wyatt to Jewell Valley Buchanan County	NS	6.40	December 30, 2002
Hurricane Junction to Clinchfield	NS	2.90	May 16, 2003
BH-0.0 at Bull Creek and milepost BH-4.0 at Harman, in Buchanan County	NS	4.00	October 9, 2003
Milepost PO-0.0 at Bluestone (WV) and milepost PO 1.9 at Pocahontas VA	NS	1.00	October 24, 2003
Burkeville to Pamplin - MP N134.1 T0 N167.9	NS	33.80	January 18, 2005
Brunswick County, VA - MP FD 90.20 Edgerton - FD 95.20 Lawrenceville	NS	5.00	Filed 1/31/2007
City of Portsmouth, VA - MP SA 0.28 - SA 0.78	CSXT	0.50	Filed 6/5/2007
Norfolk and VA Beach, VA - MP VB-0.12 Norfolk - VB-15.46 VA Beach	NS	15.34	August 2, 2007
TOTAL RAIL LINE ABANDONMENTS 1992 - June 2008		**120.22**	

TOTAL RAIL LINE ABANDONMENTS 1970-1991		**692.51**	
TOTAL RAIL LINE ABANDONMENTS 1970 - June 2008		**812.73**	

* Designates a Wilbur Smith & Associates Study of Potential Abandonments.
** South Boston to Clover was a reinstitution of previously abandoned trackage.
*** Virginia mileage; total abandonment mileage in parentheses.
**** The abandonment of trackage rights by CSX over NS trackage from Loch Laird to Glasgow is not included.

1970-1995 TOTAL RAIL LINE ABANDONMENT NOTE: The abandonment of trackage rights by the Southern Railway over the Seaboard Coast Line from Tarboro, North Carolina, to Pinners Point (Portsmouth) on November 26, 1973, and the abandonment of trackage rights by CSX over NS from Alexandria to Orange on August 8, 1994, and from Loch Laird to Glasgow on August 26, 1994, are not included.

Figure A-2. List of Rail Line Abandonments (1992 - 2008)

Rail Line Abandonments / Unused Rail Lines

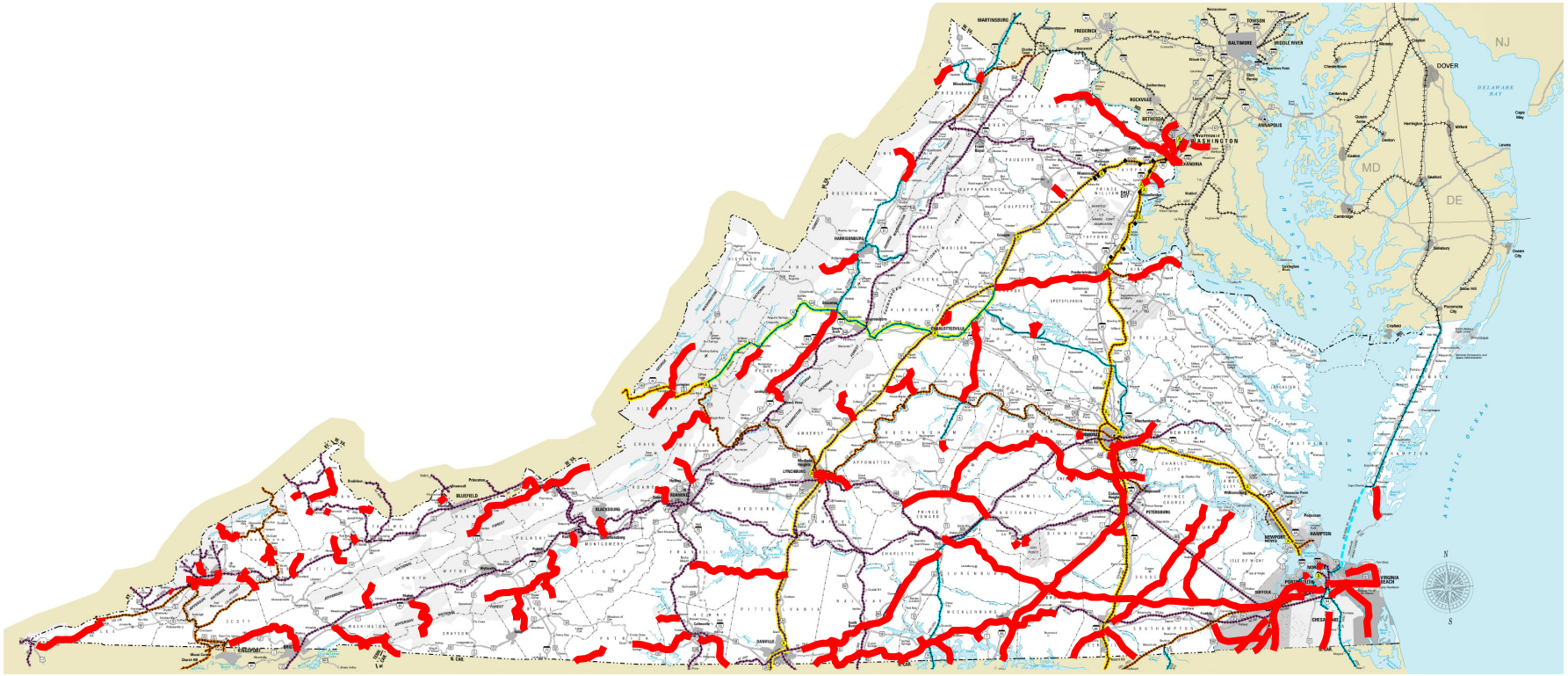


Figure A-3. Rail Line Abandonments and Unused Rail Lines (2008)

A.2 Rails to Trails Program

A requirement of the federal surface transportation act includes a provision that 10 percent of the federal transportation funds apportioned to a State under federal section 104(b)(3) for each fiscal year shall be used for Transportation Enhancement (TE) projects. The federal TE program funds 12 different types of transportation-related activities. Activity 8, known in law as "Preservation of abandoned rail corridors, including the conversion and use thereof for pedestrian and bicycle trails," is used to expand travel and recreational opportunities within communities (CFR Sec. 266.15 FRA Requirements for State Rail Plan – [c.1] special conditions, and [c.11] alternate transportation modes). Converted rail corridors are used for trails because of their flat grade, long length, intact right-of-way, and few street crossings.

Trails that are built alongside abandoned rail corridors are known as "rails-to-trails." Trails that are built adjacent to an active rail line are known as "rails-with-trails." Existing rails to trails in Virginia are shown in Figure A-4 according to the Virginia Outdoors Plan prepared by the Virginia Department of Conservation and Recreation (DCR). Also shown in Figure A-4 are potential projects that are under development, or are being evaluated for feasibility by the Commonwealth.

Working within Federal Highway Administration (FHWA) guidelines, VDOT determines the eligibility of TE projects for funding; however, the Virginia Department of Conservation and Recreation (DCR) is the Commonwealth's primary agency responsible for coordinating rail trail projects in Virginia – with input from DRPT. Examples of rail trail projects that may be considered eligible for federal TE funding include:

- Acquiring railroad rights-of-way
- Planning, designing, and constructing multi-use trails along a railroad right-of-way
- Major reconstructions of trails along a railroad right-of-way
- Developing rail-with-trail projects

Under contract to DRPT a guideline document was prepared entitled *Design Considerations for the Establishment of Rails-with-Trails in the Commonwealth of Virginia, September 2006*, by HDR Engineering. As part of the Southeast High Speed Rail Project, the feasibility of a rail-with trails route adjacent to the high speed train system is being evaluated as part of the Tier II EIS report. Under contract to DRPT a document was prepared entitled *Rails-with-Trails, Corridor Issues of the S-Line and Cost Estimates, February 2007*, by HDR Engineering. Copies of both of these documents are available for download from DRPT's website www.drpt.virginia.gov . In Section 17.1 above it was noted that there were 486 fatalities nationwide and 5 fatalities in Virginia due to trespassers on rail right-of-way in 2007. It is understandable that rails-with-trails is not a very popular idea within the railroad industry because of the significant liability and safety issues that arise from potential trail users (including families with children and pets) walking next to an active railroad. The following trail guideline policy by Norfolk Southern Corporation is fairly typical within the industry:

> "Norfolk Southern is opposed to any Rails-with-Trails project that would encroach upon its right-of-way. For safety reasons, Norfolk Southern opposes any project that would place a trail in close proximity to the rail lines and will not consider selling, leasing, donating, or granting easements along, beside, or over active railroad tracks

or railroad corridors for pedestrian walking/hiking/jogging trails, bike paths, parks, or other recreational usage. This includes active rail lines, and rail lines that may be temporarily unused, where the track is still in place.

Norfolk Southern is not opposed to working with Rails-to-Trails groups on projects on rail lines that are abandoned or that NS has filed for abandonment with the Surface Transportation Board as long as the trail does not intersect with another rail line. If the proposed trail intersects with an active rail line, then the trail must either overpass, underpass, or go around the active rail line. Only if this requirement is met will a trail be considered.

Norfolk Southern will consider selling the right-of-way of an abandoned rail corridor (where the track has been removed) for pedestrian walking/hiking/jogging trails, bike paths, parks, or other recreational usage for a fair market value which takes into consideration the value of the corridor."

Existing Rails-to-Trails

1. Chessie Nature Trail
2. Devils Fork Loop Trail
3. Guest River Gorge Trail
4. Hanging Rock Battlefield Trail
5. Huckleberry Trail
6. James River Heritage Trail
7. Lake Accotink Trail
8. Little Stony Natl. Rec. Trail
9. New River Trail State Park
10. Phillips Creek Loop Trail
11. Railroad Ford Trail
12. Richmond - Danville Rail-Trail
13. Riverwalk Trail
14. Staunton River Battlefield Rail-Trail
15. Virginia Creeper Natl. Rec. Trail
16. Washington and Old Dominion RR Regional Park
17. Wilderness Road Trail
18. Virginia Airline Trail

Potential Rail-to-Trails or Rails-with-Trails under study or development by Dept. of Conservation and Recreation (DCR)

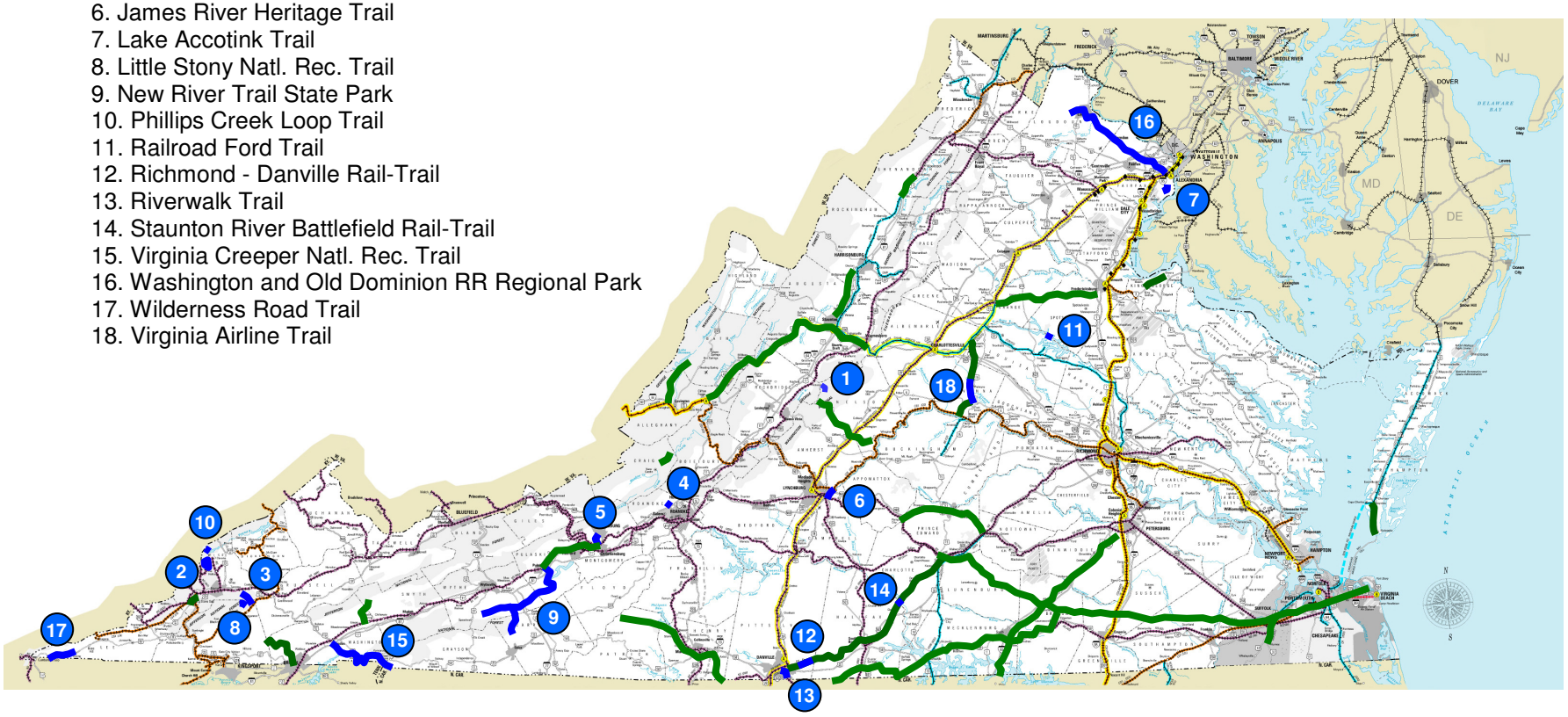


Figure A-4. Existing Rails-to-Trails

APPENDIX B

Summary of Previous and Current Transportation Studies

B. SUMMARY OF PREVIOUS AND CURRENT TRANSPORTATION STUDIES

The major passenger and freight transportation corridors in Virginia have been evaluated in recent years by the Commonwealth, Multi-State Coalitions, and a variety of transportation advocacy groups representing all modes of transportation (CFR Sec. 266.15 FRA Requirements for State Rail Plan – [c.1] relevant data sources, assumptions, and analytical methodology, [c.7] alternatives analyzed, [c.8] application of benefit cost methodology for each project, [c.6.iii] condition, [c.9], and [c.9.i] partnership and funding). A brief summary of several key multi-modal transportation studies which included existing and future passenger and freight rail improvements in Virginia for highway congestion relief (passenger and trucks) and air quality improvements in urban regions are presented below. Full copies of these reports can be downloaded from DRPT's website (www.drpt.virginia.gov).

B.1 Governor's Commission on Rail Enhancement for the 21st Century Report

The special blue-ribbon commission report prepared in 2004 stated that a transportation crisis was facing the nation and Commonwealth. Excerpts from the executive summary contained the following observations and recommendations that were made by the Commission:

At the National Level

"While traffic congestion threatens the quality of life in our most populous areas, highway systems in most metropolitan areas, especially along the East Coast, are approaching the limit of planned construction. New highway infrastructure is constrained by lack of funding as well as environmental issues, anti-growth perspectives, and less space in which to retrofit new highway lanes.

Many states have successfully partnered with freight railroads in order to provide commuter and intercity passenger rail alternatives. Attempts to accommodate ridership growth and address on-time performance are often difficult, as freight railroads struggle with their own challenges. When the local and state governments have made significant investments to add capacity and increase speeds on the freight rail lines, such as the Cascades Corridor in Washington and Oregon and the Capital Corridor in California, rail service has experienced substantial increases in ridership.

Throughout the past decades highway miles have increased and rail miles have declined. Between 1970 and 2003, Class 1 railroad miles were reduced by approximately 50%, many of them going to short-line railroads. From 1975 to 2003, freight carloads handled by railroads increased from 22.9 million to 28.9 million per year. Rail traffic density indicates higher utilization with "ton miles" per mile of track tripling.

In over 25 years, the Federal government has spent approximately three-quarters of a billion dollars on transportation, of which only 4% has been for rail."

In Virginia

"From 1930 to 1990, highway miles in Virginia have increased almost tenfold. Still, severe traffic congestion affects the quality of life of many communities, and threatens to thwart economic development. In Virginia, alternatives to highway travel include bus service,

Metrorail (in Northern Virginia) and the Virginia Railway Express (VRE) commuter rail system, which operates on Norfolk Southern and CSX tracks. While the partnership was rocky at first, VRE has become a success story and has benefited from public/private investments in its host railroads' infrastructure.

Transportation planners have long sought highway opportunities to divert truck traffic from congested highway corridors. The potential for rail alternatives has essentially not been considered as part of the equation.

Rail, in the meantime, has the potential for increasing its capacity, but has its own challenges in order to address choke points and clogged main lines. If the quality of rail transportation is not improved, some Virginia companies could be forced to relocate outside the Commonwealth in order to accommodate their shipping requirements.

The Virginia State Rail Plan (2004) has developed an unconstrained estimate of rail needs in the Commonwealth that totals $2.7 billion through 2010 and up to $8.1 billion through 2025.Passenger-only and joint passenger-freight needs account for 81% of this total, while freight only needs represent 19%.

Currently, rail only receives $5-6 million each year for industrial access and the rail preservation fund. Virginia has no trust fund allocation for rail. Increased rail funding could provide substantial benefits to the public. For instance, in the Richmond to Washington DC corridor, an investment of $400 million could reduce train travel time along that corridor by a half hour and would, at a minimum, double the ridership from approximately 700,000 to 1.5 million annually.

In struggling to address these challenges, Virginia continues to operate under funding laws essentially unchanged since their enactment 18 years ago. The Commission urges a fundamental cultural and policy shift, with rail as a major component in a multimodal solution to the transportation challenge; in response to its charge, the Commission recommends:

1. Adoption of following Virginia Rail Vision and Goals:

<u>Vision</u>

- Virginia's rail system – a key component of the Commonwealth's intermodal system for the movement of people and goods – will be a partner in the mid-Atlantic region, providing higher-speed intercity passenger and commuter service along major corridors, and accommodating significant increases in freight movement supportive of the Commonwealth's economic development goals. Virginia's rail system will enhance safety, reduce congestion and achieve environment goals.

<u>Goals</u>

- Significantly increase both freight and passenger rail capacity and reliability in theI-81, I-64, US 460, I-95, and US 29 corridors.
- Working with the partner transportation commissions (NVTC and PRTC) and local participating jurisdictions, expand the Virginia Railway Express (VRE) to accommodate increased ridership and demand, improve service, and expand coverage both within their existing transportation commission boundaries and beyond.

- Establish the TransDominion Express (TDX) passenger rail service that would link Southwestern Virginia to Richmond via Lynchburg, and Southwestern Virginia to Washington, DC via Lynchburg and Charlottesville.
- Improve freight rail service to the Hampton Roads/Newport News ports.
- In coordination with the Federal government and other mid-Atlantic states, establish the infrastructure for higher-speed passenger rail between Washington, D.C. and Richmond as a spine that would connect to both Hampton Roads and North Carolina.
- Develop regional rail intermodal terminal facilities (e.g., in Petersburg, Roanoke and other areas).
- Continue strong and sustained support for Virginia's short-line railroads.
- Whenever railway rights-of-way are being considered for abandonment, ensure that those that may be needed in the future are preserved for future rail use.

2. Endorse the Virginia State Rail Plan as an excellent document providing an out standing history of the rail industry and a cataloging of rail needs and projects in the Commonwealth, further recognizing, however, that it needs continued work by senior management to prioritize projects, to identify where public-private investments would be most beneficial and to shape the details of a rail implementation plan for the Commonwealth.

3. Reaffirm rail development responsibilities with the Department of Rail and Public Transportation, ensuring that adequate senior-level staffing is provided to achieve the rail vision and goals.

4. Designate the Commonwealth Transportation Board (CTB) as the entity authorized to issue bonds or other indebtedness to support rail enhancements, subject to bonding, statutory and constitutional requirements.

5. Create a permanent Rail Advisory Commission, chaired by an at-large member of the CTB designated by the Governor. The Commission would advise the Secretary of Transportation and the Director of Rail and Public Transportation (DPRT). In consultation with the Director of DRPT, it would also have the responsibility of making recommendations to the CTB as to distributions or grants from the Railway Preservation and Development Fund. Further, it would be charged with providing the focus and advocacy for rail issues needed to realize the Virginia rail vision and goals outlined in this report. The Commission would periodically review, update and assist with prioritization of projects in the Virginia State Rail Plan. The Commission would provide an annual progress report to the Governor, the Director of DRPT, the CTB and the Secretary of Transportation on progress being made to achieve the vision and goals, along with any needed recommendations.

6. Pursue dedicated and sustained funding mechanisms for rail enhancements with the goal of making funds available for leveraging through public-private partnerships, matching Federal funds and/or servicing debt. The Commission recommends and urges that this be a new source of funding, one that does not detract from the already modest funding allocated to transit in the Commonwealth.

7. Seek an amendment to the Code of Virginia (Section 33.1), Railway Preservation and Development Fund, to provide a matching requirement, or in-kind contribution, when monies

in this Fund are used to partner with private railroad companies on projects that have a public benefit, as determined by the CTB upon recommendation from the Rail Advisory Commission.

8. Recommend that rail (both passenger and freight) be incorporated into Virginia's Commonwealth and metropolitan planning organization (MPO) planning processes.

9. In partnership with other states, pursue with the Federal government the inclusion of rail as a key element in national transportation policy and funding, with a view to its criticality in addressing the increasing freight demands, the need for higher-speed intercity passenger and commuter service, and environmental concerns."

Great (But Realistic) Expectations: This fundamental cultural and policy shift will not happen overnight. Rail development progress in the United States and in the Commonwealth in particular, must necessarily be viewed as the continuation of successive steps leading to amore significant role for intercity passenger, commuter, and freight rail in a comprehensive intermodal transportation structure and service matrix. Public expectations for dramatic, near term improvement in rail service should be tempered by the recognition that the rail mode of transportation has not enjoyed the public investment and policy support that has been accorded highways and aviation. Rebalancing this inequity in the transportation market place will take many years to achieve and will require a combination of executive and legislative initiatives that go substantially beyond the recommendations of this report. These expectations can only be met if there is active cooperation and partnership with railroads.

The benefits can be great, however. Mobility challenges, which threaten our quality of life and economic vitality, will best be met by investing in and connecting the mosaic of transportation modes and alternatives serving the Commonwealth."

The Governor's Commission in 2004 was a major milestone for rail development in Virginia. In response to the report many of the recommendations above were implemented by the Governor and General Assembly as stated or in a modified form. A Rail Advisory Board was subsequently created, and the Rail Enhancement Fund was established with financial resources to begin tackling major rail chokepoints and issues affecting both freight and passenger rail improvements. Major transportation corridors (I-95 and I-81) have also received additional funding from the General Assembly earmarked through the Rail Enhancement Fund for rail improvements for passenger rail and to encourage the diversion of cargo (particularly containerized cargo) from trucks on the highways to the rail system.

B.2 I-95 Corridor Coalition: Mid-Atlantic Rail Operations Study – Phase II

Phase I of the Mid-Atlantic Rail Operations (MAROP) Study was published in April 2002. The Phase II study was published in December 2009 and examines the condition and performance of the regional rail system, updating the findings of the 2002 MAROps Phase I study. The studies are part of continuing initiative of the I-95 Corridor Coalition, five Mid-Atlantic states (Delaware, Maryland, New Jersey, Pennsylvania, and Virginia) and three railroads (Amtrak, CSX, and Norfolk Southern) to understand the impact of rail choke points on rail freight transportation and the economy of the region.

The study finds that the Mid-Atlantic region faces clear challenges to moving freight in the future. The population of the five-state area is projected to grow from 36 million in 2008 to nearly 45 million in 2035 and employment is expected to grow from 23 million jobs to 31

million jobs. With these changes will come a significant increase in demand for freight transportation to support businesses, households, and government services.

The national and regional economies are weathering a major recession today that has reduced demand across all freight transportation modes, but the eventual economic recovery will quickly return the freight system in the Mid-Atlantic (and the nation as a whole) to where it was in 2007 and early 2008—in the early stages of a capacity crisis. The current fiscal climate encourages state transportation agencies and the railroads to put off challenging questions and long-term investment in favor of addressing short-term needs. But without coordinated planning and additional investment, significant congestion can be expected in the future on both the rail and highway systems. This is especially true for the region's rail system.

Today, 88 percent of freight rail corridor miles in the MAROps region operate below capacity (at levels of service A, B, or C) and three percent operate above capacity (at level of service F). Without further improvements to the rail system, by 2035 only 43 percent of rail corridor miles in the MAROps region are projected to operate below capacity (at levels of service A, B or C), while 30 percent will operate above capacity (level of service F).

Implementing the full MAROps program, estimated to cost about $12 billion over the 30 year period (up from $6.2 billion in 2002 MAROps Phase I study, largely because of the increases in energy and material costs), would maintain the capacity of the system. The program would involve implementation of 217 projects, including 110 projects to add mainline capacity and 81 projects to provide doublestack clearance. There would also be projects to expand terminal capacity, remove or rebuild grade crossings, replace or rehabilitate outdated bridges and tunnels, and add new communication and technology to improve safety and the coordination of train movements.

Increasing the capacity of the network has the potential to increase the share of freight captured by rail. The rail share of freight transportation in the Mid-Atlantic region is between one and two percent lower than the national average. Conservative estimates of the potential to shift freight from truck to rail suggest that rail could capture the equivalent of 13 to 55 additional trains per day. This would remove a moderate amount of truck traffic from the region's highways, relieving some of the congestion pressure on the highways.

The additional traffic would—as intended—absorb some of the capacity provided by the MAROps improvements. With implementation of the full MAROps program and a "high" increase in rail mode share, 70 percent of the rail corridor miles in the region are projected to operate below capacity by 2035 and 6 percent would operate above capacity.

Implementing only the 150 priority MAROps improvements—the projects judged by railroad managers and state DOT officials to be critical path projects that would yield the highest near-term benefits—would reduce the cost of the program from $12 billion to $6 billion. The rail system would not have as much capacity to attract and absorb new traffic as it would with the full MAROps program, but it would still have sufficient capacity to capture a moderate amount of new freight traffic. Implementing the priority projects only and assuming a "low" increase in rail mode share, 57 percent of the rail system would operate below capacity and 19 percent would operate above capacity.

Implementing the full MAROps program would contribute $1.3 billion in business output and 9,800 jobs to the five-state region each year. Shippers would see a modest reduction in

transportation costs (around 1 percent), railroads would carry additional freight, increasing their revenue, and freight operators would see overall net reductions in costs of $40 and $52 million per year in operating costs.

The benefit/cost ratio of implementing the full MAROps program and achieving a high increase in rail mode share is estimated at 1.86. The benefits include traveler benefits, shipper benefits, and societal economic benefits.

The benefit/cost ratio of implementing only the priority MAROps improvements and achieving a low increase in rail mode share is estimated at 2.9. The ratio is greater because implementing only the priority MAROps improvements would defer several of the highest-cost and most complex improvement projects. Both programs would generate economic growth in all five states and the three major metropolitan areas within the region.

The findings of the MAROps Phase II study reinforce the conclusions of the Phase I study, which found that cooperative action between the states and railroads is critical to improving the system. The MAROps rail network covers five states and serves three major metropolitan areas, each its own jurisdictional roles and responsibilities. However, the network is operated as a system. Improvements in one state alone, while beneficial, would simply shift choke points upstream or downstream and would not necessarily improve overall corridor capacity and travel times. A coordinated program of state- and railroad funded improvements is needed across the network if rail capacity is to be increased and freight traffic shifted from truck to rail.

The MAROps Phase II study also confirms the need for a national support for major rail improvement projects. The MAROps projects range in complexity from relatively simple fixes to extremely complicated and costly projects such as the multi-billion-dollar Baltimore rail tunnel improvements. The states and railroads can address many of the smaller, less costly projects over time, but national action will be required to accomplish the major projects.

The major projects will benefit the region, but they also will improve rail freight and Amtrak passenger rail operations between the Mid-Atlantic and the Midwest, the Southeast, and the West Coast. The full set of MAROps improvements will encourage long-haul truck traffic to shift to improved rail intermodal service. This will reduce logistics costs for shippers and highway congestion across the country, not just within the MAROps region.

In summary, without concerted action to implement the MAROps improvements, the capacity of the rail system will lag behind population and economic growth. Rail freight will be shed to trucks, adding congestion to the region's already overloaded highway system. The cost of freight transportation in the region generally, and the cost of rail freight transportation specifically, will increase. This will drive up the cost of living and cost of doing business in the region, reducing the economic competitiveness of the region in national and global markets. The Mid-Atlantic is one of the nation's largest and most important population and economic regions. It must have balanced and cost effective freight and passenger transportation system. For these reasons, its is recommended that the I-95 Corridor Coalition, its member states, and the railroads advance the MAROps program and look for opportunities to accelerate implementation of the projects.

B.3 Washington, D.C. to Richmond Third Track Feasibility Study (2006)

The study was requested by the 2006 General Assembly session in HB 5012. In addition to an analysis of the feasibility of constructing a third track, this study responded to the General Assembly's direction to expand the scope to:

- Identify needed right-of-way parallel to existing tracks, including right-of-way owned by CSX or by other parties;
- Identify major environmental issues;
- Develop an implementation plan based on the most optimal options, including the schedules for each phase of the project as well as financing for the project;
- Review legal and regulatory issues; and
- Estimate the cost of powering passenger trains by electricity for a Third Track from Washington, D.C. to Richmond.

B.3.1 Previous I-95 Corridor Studies

The 2006 report prepared by DRPT for the General Assembly (House Document No. 78) indicated that three major studies of rail improvements in the Washington, DC to Richmond corridor had been conducted over the past ten years, all of which addressed the feasibility of implementing fast, frequent and reliable passenger rail service. DRPT conducted an initial concept and feasibility study in 1996. This was followed up by a more detailed operational analysis and preliminary engineering study conducted by the Federal Railroad Administration (FRA) and Amtrak in 1999. In 2002, DRPT and the North Carolina Department of Transportation (NCDOT) completed the Southeast High Speed Rail (SEHSR) Tier I Environmental Impact Statement (EIS) which integrated the Washington, D.C. to Richmond improvements into the longer bi-state rail corridor extending through Raleigh, N.C. to Charlotte, N.C. A FRA and FHWA Record of Decision approving the EIS for the rail corridor from Washington, D.C. to Richmond, Raleigh, and Charlotte was issued in 2002.

The approach followed in these previous studies was to establish goals for provision of quality service and then to identify a package of improvements that would be sufficient to achieve those goals. Over time, people have come to use the term "third track" to describe the improvements that are being recommended in these studies. However, the package of improvements identified in these reports includes much more than just a third track. A detailed list of track, signal and station improvements has been recommended which are designed to address the capacity and speed constraints of the existing infrastructure and to accommodate the service goals of reducing travel time, increasing frequency and increasing reliability of passenger trains.

Of the three studies conducted, the Amtrak/Federal Railroad Administration (FRA) report, which was submitted to Congress in May 1999, provided the most comprehensive analysis of the proposed improvements. The stated purpose of that study was to specify, "... the infrastructure improvements that would enable the Washington-Richmond Corridor to accommodate reliably the mix and volume of higher speed intercity passenger, commuter and freight services that the line's operators and public partners foresee for the year 2015." An assessment of then current facilities, services and operating conditions was conducted as part of that study.
Subsequent to the above studies, all of the key parties in this corridor, including DRPT, FRA, Amtrak, CSX and the Virginia Railway Express (VRE), the commuter railroad operating between the Northern Virginia suburbs and Washington, D.C., worked together to

characterize the service needs for a study planning year of 2015. An operational analysis was conducted to simulate the performance of future services over various configurations of infrastructure.

From that analysis, a set of infrastructure investments was developed that would allow operations that achieve the intended service quality and train volumes with satisfactory reliability. The operational report concluded that "Reliable high-speed passenger train service between Washington and Richmond is a feasible goal provided that requisite infrastructure improvements are constructed."

The most recent evaluation completed for continuing the third track program in the corridor was the Third Track Conceptual Location Study completed by DRPT in June 2004. That study identifies the conceptual location of a third mainline track in the corridor between Richmond Staples Mill Road Station and the Ravensworth Interlocking, a crossover which is located south of Franconia in the Northern Virginia suburbs of Washington, D.C. The corridor examined in that study was 92.7 miles in length and accounted for 78% of the total mileage between Richmond Main Street Station and Washington Union Station. The conceptual third track location identified in the study lies principally on the west side of the existing two-track corridor. The objective of that study, which took into account existing and planned rail infrastructure, was to help guide planners and engineers in formulating the location and design of individual future improvements and ultimately the location of the third track.

DRPT also prepared a Richmond Area Master Plan in 2003 that addressed needed improvements on CSX between the Amtrak Staples Mill Road Station, located north of the city, and Main Street Station in downtown Richmond. That study analyzed a number of Amtrak intercity passenger rail issues including better transit times, options to bypass the congested CSX freight switching operations at Acca Yard, and passenger train layover and turning locations necessary for increased service to Main Street Station. All of these improvements would be critical to providing enhanced intercity passenger service to downtown Richmond.

B.3.2 Implementation of Third Track Projects

With passage of the Virginia Transportation Act of 2000 (VTA2000), the Commonwealth began design and construction of several sections of third track in the corridor and a number of the improvements supporting the third track program. These projects, carried out in accordance with a Memorandum of Understanding signed by the Commonwealth, VRE and CSX, included approximately 12.8 miles of mainline third track at:

- Crystal City in Arlington County (1.1 miles)
- L'Enfant Plaza in Washington, DC (1.0 mile)
- Franconia Hill in Fairfax County (7.6 miles)
- Fredericksburg in Stafford County (3.1 miles)

In addition, other infrastructure supporting the third track was also implemented under VTA2000. Most notable was the construction by VRE of the second CSX bridge spanning Quantico Creek (which was completed in 2007). This new bridge eliminated the single

largest bottleneck in the Washington to Richmond corridor by adding second and third track capacity to what was a single-track crossing of the creek.

Other improvements noted in the 2006 report that were completed, under design or in construction that provided immediate benefit to passenger and freight train movements, as well as support of three-track operations in the corridor, included:

- Train crossovers between mainline tracks at Elmont (Hanover County), Arkendale (Stafford County), Possum Point (Prince William County), and Slaters Lane (City of Alexandria).
- The new AF Interlocking 3 in Alexandria where CSX and Norfolk Southern tracks meet.
- 4.7 miles of third track between AF Interlocking and SRO Interlocking in Crystal City.
- New and upgraded signal and communication systems.
- A new railroad bridge and extension of Amtrak's Auto Train lead track at Lorton.
- Relocation and triple tracking of CSX tracks at Potomac Yard in Alexandria/Arlington.

The completed or currently programmed sections of third track account for 17.5 miles, or 15%, of the 118-mile Washington to Richmond rail corridor. This 2006 study did not include these completed or programmed miles in the total package of identified work required to finish the entire three track system. Likewise, costs for these completed or nearly completed projects are not included in the cost estimates presented in this report.

B.3.3 Recommendations of the 2006 Report

The Department of Rail and Public Transportation (DRPT) is charged with ensuring that the Commonwealth of Virginia achieves the highest public benefit for the dollars invested in our rail programs. There is no doubt that I-95 is a high priority freight and passenger rail corridor that will require significant investment in order to maintain and improve mobility for people and goods. DRPT is taking a strategic approach to studying this high priority corridor. Our new approach is based on establishing public benefits, identifying public/private partnership opportunities, and providing realistic cost estimates based on a comprehensive plan that identifies all of the improvements and issues that need to be addressed in the provision of reliable, sustainable, expandable, and efficient freight and passenger rail operations.

The report provides a minimum/partial cost estimate of $684 million in 2006 dollars for capital improvements to construct a nearly continuous third track along the entire length of the corridor and improvements to the connection between Richmond's Main Street Station and the Staples Mill Road Station in Henrico County. However, this minimum cost estimate omitted key cost drivers such as the cost of right-of-way use or acquisition, utility relocation, escalation costs, and other important improvements such as the construction of a new bridge across the Potomac River between Arlington and Washington, D.C. to eliminate a critical bottleneck for operations.

The $684 million minimum/partial estimate also did not include the cost of electrification of the corridor. This option was analyzed in the report and the cost of electrification was estimated to be at least $953 million in 2006 dollars, which is in addition to the cost of the third track. It should also be noted that heat restrictions are not eliminated as a result of the

capital improvements reviewed in this study. Heat restrictions often lead to significant delays to passenger rail operations in the corridor due to CSX policy that limits train speeds during warm weather periods.

Significant investments have been made in the corridor with funds from the Virginia Transportation Act of 2000 (VTA 2000). Two new crossovers and major signal upgrades have been completed at Arkendale in Stafford County and Elmont in Hanover County. The new bridge across Quantico Creek (completed in 2007), and construction of approximately one mile of third track at L'Enfant Plaza is underway. Three additional sections of third track are in final design, and preliminary plans have been completed for track improvements in Richmond that will improve access to Main Street Station. Completion of these projects allows the operation of four new passenger train round trips, reduced travel time and improved reliability of all trains operating in the corridor.

The 2006 report noted that there was a funding shortfall of approximately $20 million to complete these important projects. The shortfall was the result of the lack of preliminary engineering when the initial cost estimates were prepared, cost escalations, and adjustments to the projects to optimize their effectiveness. It was highly recommended that additional funding be provided to complete these projects.

Previous funds provided by the Commonwealth for these projects were not matched by CSX and the Commonwealth did not obtain an agreement that would protect the public investment by specifically establishing performance standards such as on-time performance for passenger rail service. Moving forward, DRPT highly recommends that the Commonwealth fully explore all options in this corridor. As part of this approach, the Commonwealth should identify opportunities for sharing costs and benefits of improvements in this corridor through public/private partnerships.

DRPT recommended that the Commonwealth take the following actions to advance passenger rail service in the Washington, D.C. to Richmond corridor:

1) Complete the VTA 2000 Program of Projects. An additional $20 million is needed to complete all of the Washington, D.C. to Richmond corridor projects that are currently under final design.

2) Complete a Comprehensive Alternatives Analysis. This will include operational modeling, a review of alternate right-of-ways, and the analysis of public and private benefits that will lead to the identification of opportunities for cost sharing and leveraging of public and private resources. The Public Private Transportation Act (PPTA) may offer the opportunity to identify alternative right-of-ways. It is estimated that this effort will cost $1 million and take 12 months to complete.

3) Conduct Environmental Review and Preliminary Engineering. A minimum of 30% engineering must be completed in order to determine the specific design for proposed improvements and to develop an accurate estimate of total costs. This task will include the preparation of all necessary environmental documentation. The estimated total cost is $40 million and this will take 24 months to complete.

4) Establish Agreements. The Commonwealth has a long-term interest in this corridor and will need to assume a lead role if passenger rail is going to be successful in the corridor. Agreements must be executed between the Commonwealth and other stakeholders to

establish the roles and responsibilities of each party in the construction, operations, management and governance of this rail corridor. These agreements must protect the Commonwealth's interests, allocate costs and benefits, and ensure long term access and performance for passenger rail service.

5) Identify a dedicated source of funding for capital and operating costs in the corridor. The Washington, D.C. to Richmond rail corridor represents an excellent opportunity for the Commonwealth to utilize rail to reduce traffic congestion and truck traffic in the I-95 corridor, where road expansion is very challenging due to cost and environmental concerns. Passenger rail, similar to highways, requires maintenance and incurs ongoing operating costs. Without funding and leadership from the Commonwealth, this corridor will never achieve its potential in terms of providing a viable alternative to the automobile. A source of funding must be secured before a comprehensive program of improvements can be finalized and construction can commence.

B.4 I-81 Corridor Improvement Study Tier I Final Environmental Impact Statement

The Federal Highway Administration (FHWA) and the Virginia Department of Transportation (VDOT) signed a process streamlining agreement in 2003 that defined the decision-making and approval process to be followed for a tiered environmental study of the Interstate 81 (I-81) corridor in Virginia. In accordance with the agreement, FHWA and VDOT prepared a Tier 1 Final Environmental Impact Statement (FEIS) for the I-81 Corridor Improvement Study. The Tier I FEIS, prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), identifies needs, develops solutions, and evaluates potential impacts associated with conceptual-level improvements along the entire 325-mile I-81 corridor in Virginia, as well as improvements to Norfolk Southern's Shenandoah and Piedmont rail lines in Virginia. A Record of Decision approving the Final I-81 Corridor EIS by FHWA was issued in June 2007.

I-81 in Virginia extends 325 miles in a southwest to northeast direction in Western Virginia from the Tennessee border north to the West Virginia border, passing through 21 cities and towns and 13 counties. Conceptual-level improvements to the entire 325-mile length of I-81 in Virginia were evaluated based on the Purpose and Need. For purposes of characterizing the affected environment, the I-81 study area ranges in width depending on the environmental resource considered, but generally extends 500 feet from either side of the I-81 outside edge of pavement. This width was used based on the needs, to represent the maximum area within which potential highway improvements may be developed.

In addition to addressing the needs with highway improvements, the study evaluated the effectiveness of four rail improvement concepts in meeting the identified needs. Potential improvements to Norfolk Southern's Shenandoah and Piedmont rail lines were evaluated. Since the Piedmont rail line is geographically distant from I-81, a separate rail study area was also created. The rail study area consisted of 13 discrete sections along Norfolk Southern's existing Piedmont and Shenandoah rail lines in Virginia. The length of the rail improvement sections range from less than ½ mile to 10 miles long, but most of the sections were between one and two miles long. For each rail section, environmental resources were generally identified within 500 feet on either side of the rail centerline. This width included the limits where potential rail improvements might occur.

Capacity deficiencies stated in the report included:

- Traffic volumes have doubled and, in some cases, tripled since 1978.
- 2004 traffic volumes are expected to almost double by 2035.
- Truck traffic is projected to grow at a faster rate than general traffic.
- Over 90 percent of I-81 is projected to operate below the level of service standard in 2035.

The potential to divert trucks to rail was evaluated as part of the I-81 study. All rail alternatives were based on Norfolk Southern's Crescent Corridor rail system (Figure 18-4), which roughly parallels the I-81 highway system. Rail Alternative 3 was deemed the most feasible option with rail improvement costs varying from $500 million (2005 cost data) to $700 million (estimated 2015 cost data). If implemented, the rail improvements would divert approximately 3.5% of truck traffic off of I-81 in 2035.

B.4.1 The Northeast – Southwest – Midwest Corridor Marketing Study (2003)

The VDOT I-81 FEIS contained in its documentation an earlier study conducted in 2003 by Reebie Associates for DRPT which evaluated potential freight diversion on I-81 considering all states affected by the interstate. The study indicated that a medium-term investment for rail improvements in Virginia only would cost approximately $500 million, and would divert approximately 9.8 to 10.4 percent of total truck traffic off of I-81. If all states impacted by I-81 would make similar medium-term rail improvements, the total cost would be $2.6 to $2.8 billion (including Virginia's $500 million) and truck diversion in Virginia would increase to approximately 13.7 to 14.6 percent of total annual truck traffic. Stated another way, after investing an estimated $500 million in improvements to achieve 9.8 to 10.4 percent diversion of trucks on I-81 in Virginia, additional I-81 investments in rail improvements in Virginia would not take additional trucks off of the interstate unless surrounding states invested $2.1 to $2.3 billion to remove rail chokepoints located in their respective states.

Rail and highway capacity modeling conducted by VDOT during the I-81 EIS indicated that the Reebie Study costs were appropriate, but that the potential diversion of trucks would be a lower percentage (particularly in the longer 2035 planning horizon).

B.4.2 Opportunities for Truck to Rail Diversion in Virginia's I-81 Corridor

Cambridge Systematics is currently under contract to the VDOT Transportation and Mobility Division to conduct a detailed assessment of the maximum feasible truck-rail diversion on I-81, and determine what necessary steps in terms of rail improvements and freight operations are required to achieve that diversion. The study process is summarized in Figure B-4. Although the final report will be completed this Summer (2008), the result of the maximum feasible truck-rail diversion portion of the study has been completed and is estimated to be approximately 4.6 % of the total annual truck traffic in 2035. This would equate to approximately 1.5 million trucks per year diverted from I-81. The maximum feasible truck-rail diversion analysis assumes that the necessary rail infrastructure improvements would be made on the I-81 transportation corridor to support the diversion of freight from truck to rail operations in a cost-effective manner.

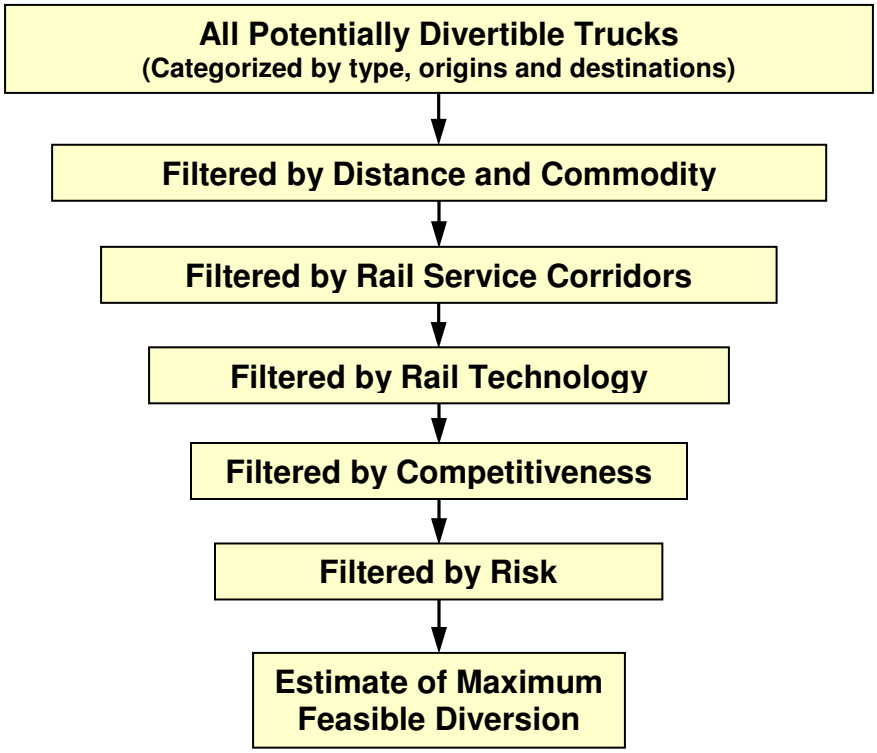


Figure B-4. Overview of the I-81 Truck-Rail Diversion Estimation Process
(Source: Cambridge Systematics)

B.5 TransDominion Express (TDX) Studies (2007 Update)

In 2007, DRPT prepared House Document No. 2 for the Governor and General Assembly entitled *TransDominion Express Status Update*. TDX is a proposed relatively high speed passenger rail service between Bristol, Roanoke, and other Southwestern Virginia communities to Washington, D.C. and Richmond. A map of the proposed rail route is shown in Figure B-5. The service would require a new passenger service route on the NS Crescent Corridor from Bristol to Roanoke and then to Lynchburg, where it would connect to the existing Amtrak passenger route running north to Washington, D.C. on the NS Crescent Corridor. At Lynchburg a new passenger service route would also run east-west using portions of the NS Heartland Corridor and other NS tracks to connect to Richmond's Main Street Station. In several small areas CSX and Amtrak tracks would also be utilized.

No funds have been allocated for operating TDX or making related capital improvements, except for an allocation of slightly more than $9 million for capital projects as part of the Virginia Transportation Act of 2000. Several Rail Enhancement Fund grants totaling less than $200,000 have been provided to NS to conduct analysis and an evaluation of the improvements needed for the proposed passenger service.

Figure B-5 Proposed TransDominion Express Route Map

Five studies of TDX have been conducted during the past 10 years:

- 1996, by DRPT at the request of the General Assembly (Virginia Department of Rail and Public Transportation)
- 1998, by Frederic R. Harris, Inc., at the request of DRPT in response to funding made available for such a study by the General Assembly in 1996 (Frederic R. Harris, Inc.)
- 2000, by the National Passenger Railroad Corporation (Amtrak) at the request of DRPT (National Railroad Passenger Corporation)
- 2002, by The Woodside Consulting Group, Inc. (Woodside Consulting), at the request of Norfolk Southern and DRPT (Woodside Consulting)
- 2005, *Status of the TransDominion Express Passenger Rail Service, House Document No. 37* by DRPT (Virginia Department of Rail and Public Transportation).

The estimated annual operating subsidies varied in these studies, ranging from $9 million to $23 million depending on the type of service presumed and the ridership level. Capital costs were estimated in the greatest detail in the 2002 study and those capital costs were generally used in the 2005 DRPT study.

The greatest variation in the studies, however, concerned their ridership estimates: the lowest estimated annual ridership was in the 2000 Amtrak study (slightly more than 26,000) and the highest was in the 1996 DRPT study (slightly more than 500,000). Differences in ridership projections are attributed to: (1) the service levels that would be provided (earlier studies suggested that modern tilt equipment was feasible, which would offer faster service, whereas the studies since 2000 suggested such equipment may not be used and thus slower service times would result); (2) the sensitivity of ridership to varying service levels

(e.g., a travel time of "x" between two stations will yield the portion of total number of passengers choosing to use rail); and (3) assumptions regarding the impact of freight on passenger travel schedules (since any TDX passenger service would be subject to freight movements by Norfolk Southern, the owner of the rail on which TDX would operate).

The primary findings of the 2007 TDX update were:

- Capital costs for improvements for infrastructure to support full service between Bristol, Richmond, and Washington, DC, are estimated at approximately $206 million (in 2010 dollars). Rolling stock cost estimates vary depending on the type of passenger cars acquired.
- Annual operating costs for full service are estimated at $19 million (in 2010 dollars), assuming two round trip visits to all stations.
- Ridership is estimated at 14,000 to 58,000 persons annually, assuming service levels proposed by Woodside Consulting in 2002, which were more conservative (e.g., lower) than those assumed in the preceding study in 1998. The 2002 service levels entail comparable travel times between the auto and the train for a few routes (such as Charlottesville to Alexandria) but often longer times for train as compared to the auto for most routes. Data from other locations (e.g., the Downeaster Line from Maine to Boston, the Cascades Corridor in Washington State, and the Capitol Corridor in California) suggest that service times alone are rarely changed; rather, improvements such as providing electrical outlets for business travelers, using wider seats, offering better beverage service, and offering other amenities are often made in tandem with such changes. Thus, determining sensitivity to changes in service levels alone is difficult, necessitating presentation of forecasts as a range rather than a point estimate.
- Ridership varies by station location. For example, it is estimated that 70% of TDX ridership would occur at stations between Lynchburg and Alexandria, inclusive. While each additional station may add riders, some stations add more riders than others.
- Based on the estimated ridership levels, revenue is projected to be between $0.4 million and $1.8 million annually in 2010 dollars. Based on operating costs of $19 million annually (in 2010 dollars), a subsidy of between $17.2 and $18.6 million will be required. This means that about 6% of the cost to operate TDX will be borne by users of the service. Elsewhere, users pay between 43% and 51% of the cost for similar passenger service.
- TDX offers little benefit in terms of reducing travel congestion. Daily traffic volumes on some roads, such as Route 29 in Prince William County, are higher than the estimated annual passenger travel on TDX. However, TDX may offer benefits in terms of providing an alternative mode of transportation to a variety of travel markets, including tourists, college students, and households without vehicles, and within specific corridors. For example, proposed service levels suggest that TDX would offer faster service than the automobile for the segment between Charlottesville and Alexandria.
- The status of TDX has not changed since the publication of the 2005 report (DRPT, 2005).
- Two external circumstances affecting the feasibility of TDX have changed. First, Norfolk Southern has received Rail Enhancement Funds of $22.35 million over a 3-

year period to make improvements to Norfolk Southern track between Walton, Virginia, and Glen Lyn, Virginia (which will allow double-stacked freight by improving clearances in four tunnels) and to construct a proposed intermodal terminal in Roanoke (DRPT, 2006; Martinez, 2005). This set of improvements is a part of a larger plan by Norfolk Southern to improve freight capacity between Hampton Roads and Columbus, Ohio, and is generally known as the Heartland Corridor Double-Stack Initiative. Second, the Commonwealth is studying ways to reduce truck traffic in the I-81 corridor, by diverting cargo on to Norfolk Southern lines. These improvement projects may increase freight traffic on existing Norfolk Southern lines that would be used by TDX, thereby making passenger service operations more problematic. Whether either item will lead to any capacity improvements that benefit passenger operations is not known at this time, and the impact of these efforts is not reflected in studies performed to date.

B.5.1 Air Taxi Intermodal Link with the TransDominion Express

The near-term start-up of passenger rail service on the proposed TDX system from Bristol has many challenges due to its relatively low projected ridership. As an interim measure, or possible alternative transportation option, the feasibility of using an "air-taxi" service has been evaluated by the Virginia Department of Aviation in a report entitled *Air Taxi Intermodal Link with the TransDominion Express, A Feasibility Analysis, April 2008*. The multi-modal concept consists of using local air carriers operating from general aviation airports in Southwestern Virginia (Virginia Highlands, Mountain Empire, New River Valley, Virginia Tech, and Roanoke) to shuttle passengers to and from Lynchburg, where they would connect with the existing Amtrak passenger rail service connecting to Washington D.C. and from there to other national destinations.

Key findings of the analysis were:

- Annual Passenger Forecast (Rail Ridership) 21,000 passengers/year
- Average Daily Passenger Forecast 58 passengers/day
- Daily Aircraft Trip Demand (3 passengers/aircraft) 20 aircraft trips/day
- Per Seat Cost, Loaded SR22 Aircraft $200/passenger
- Daily TDX Air Taxi Carrying Cost (minimum) $12,000/day
- Annual TDX Air Taxi Carrying Cost (minimum) $4.38 million/year

According to the report, under existing conditions, an intermodal link between air taxi vendors and the TransDominion Express does not appear to be feasible. This is not; however, a final decision for halting further pursuit of the concept since TDX is still being evaluated with no deployment decision or service start date having been established. The questionable feasibility is based on the following existing conditions:

- Absence of available fleet size in the air taxi sector
- The FAA regulatory hindrance that exists in linking a scheduled service to that which is "on-call"
- The logistical issue of a modal link transferring a quantity of passengers from a single vehicle from one mode (rail) into many multiple vehicles in a second mode (small commuter aircraft).

The feasibility question is focused on logistical ramifications, not necessarily on reasons of budget or political will. These logistical impediments could conceivably be worked through on the regulatory front as well as with modal interface issues. The future could offer possible success to attain modal linkage feasibility, based on the following potential developments:

- Growth of an available air taxi fleet.
- Greater financial stability in an emerging air taxi sector.
- Reliable operational statistics upon which to formulate and plan for a business case and logistics for the modal link.

Another alternative would be a blending of concepts using aviation sector assets. Should rail passenger demand for Southwestern Virginia increase, yet still not reach a level that warrants full deployment of a rail connection, consideration could be given to an aviation link that could use a variant of the air taxi model in which a single vendor is competitively selected to provide service on a long term contractual basis. In this way, larger aircraft could be used that would provide efficiencies relating to per-seat/operating costs. An example of such an aircraft would be the Cessna Caravan, which can be outfitted with up to fourteen seats. Furthermore, the vendor could schedule the service, avoiding the very large impediment that now is inherent to the air taxi model. In addition, FAA regulations by this time may have caught-up with the dynamics of the marketplace.

It is important to note that a TDX operational subsidy to sustain the aviation link would still likely be required (estimated as approximately $4.38 million per year based on the passenger demand shown above).

Air Taxis and similar utilization of smaller General Aviation aircraft to General Aviation airports is gaining in popularity. Linking these sorts of services and assets with traditional bulk modes like rail represent innovative approaches, resulting in transportation linkages of benefit to consumers.

B.6 Southeast High Speed Rail Corridor – Tier I EIS & Tier II EIS

B.6.1 Project History

The need for a national high speed rail system has been recognized by the federal and state governments. Existing high speed rail corridors authorized by the federal Rail Administration (FRA) are shown in Figure B-6. Although primarily for passenger service, the high speed rail network would also be used for freight operations, and would operate on existing freight rail corridors.

Because of its tremendous economic and population growth, a proposed Southeast High Speed Rail Corridor extending from Washington, D.C. to Atlanta was established to provide a comprehensive, multi-modal transportation system. High-speed rail service will provide business and leisure travelers with a competitive alternative to air and auto for trips between 100-500 miles.

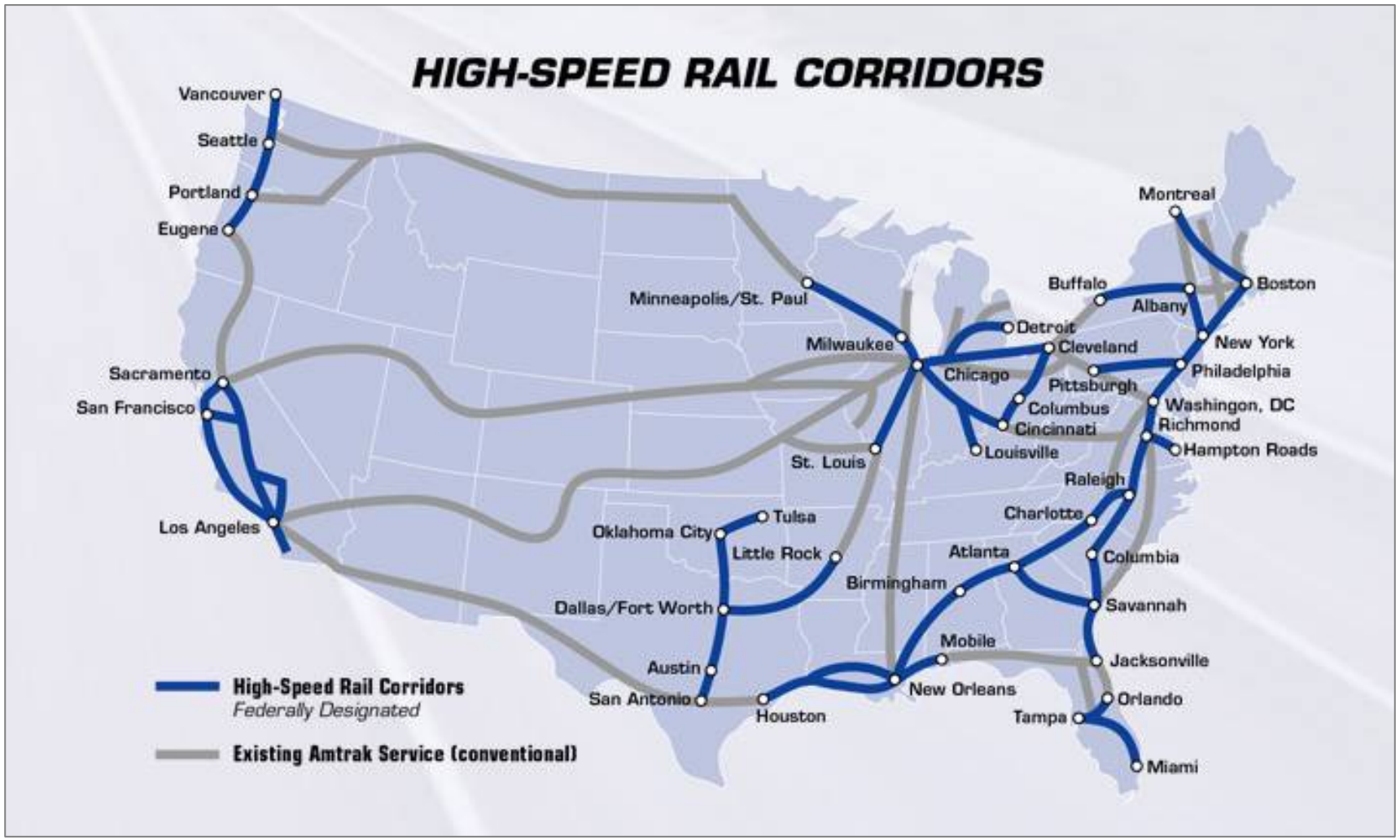


Figure B-6. National High Speed Rail Corridors
(Source: Federal Railroad Administration)

High speed rail in the southeast will mean top speeds of 110 mph and average speeds between 85-93 mph. Virginia, North Carolina, South Carolina and Georgia have joined together with the business communities in each state to form a four-state coalition to plan, develop and implement high speed rail in the Southeast. The system will be developed incrementally, upgrading existing freight rail rights-of-way.

B.6.2 Tiered Environmental Process

Developing the Southeast High-Speed Rail Corridor will take several years. All transportation projects that use public funds must examine potential environmental impacts and involve the public in the decision-making process.

Virginia, North Carolina, and the FHWA and FRA completed the vital first part of a two-part environmental study for the Washington, DC to Charlotte, NC portion of the Southeast High Speed Rail Corridor (SEHSR) in October 2002.

The first study phase - referred to as the Tier I Environmental Impact Statement (EIS) - examined the need for the project and looked at potential impacts on both natural and man made environments along nine possible routes. Public involvement was critical during this phase with 26 public information workshops and 18 public hearings held in North Carolina and Virginia to solicit feedback about the project. Throughout the Tier I EIS process, meetings with the public, political leaders, planners, resource agencies, railroads and other interested parties were held to obtain input on the project.

The Tier I EIS identified the preferred corridor shown in Figure B-7, and the following project purpose and need.

- Provide transportation options
- Ease the rate of congestion growth in the corridor
- Improve safety and energy effectiveness
- Improve air quality
- Improve transportation efficiency while minimizing impacts

The Final Environmental Impact Statement, which outlines why the recommended alternative was selected, was completed in June 2002, and a formal Record of Decision was issued in October 2002. This federal document confirms the preferred corridor recommended by the Tier I EIS.

The Washington, DC to Charlotte, N.C. portion of the SEHSR corridor could be implemented by 2015 depending on funding availability. In the meantime, other rail improvement projects which will reduce travel time are being implemented within the next few years. Implementation of the remainder of the SEHSR into South Carolina, Georgia and Florida will follow by several years.

Figure B-7. Southeast High Speed Rail Corridor (Washington, D.C. to Charlotte, N.C.)

Virginia and North Carolina are now proceeding with the next phase, Tier II, which provides a detailed analysis on the impacts, including track location, station arrangement and detailed design. Rather than a single large document, smaller Tier II environmental studies will be conducted for specific segments of the route where track work will be needed. The first segment is the SEHSR Corridor between Richmond, VA and Raleigh, N.C. as shown in Figure B-8. The Tier II project schedule and milestones are summarized below:

- 2003: -The Tier II EIS initially began for the segment from Petersburg, VA to Raleigh, NC. The document looks in detail at specific designs and their potential impacts within this segment. Nine meetings (called Public Information Workshops) were held between June and August, and 636 citizens attended. As part of the current (Tier II) EIS process, citizens had the opportunity to pose questions and comments, as well as gather information. Input from these citizens is being incorporated into the planning.

- 2004 to 2006: The Draft Tier II EIS is being compiled. (Note: The Federal Railroad Administration released the *Transportation Planning Report for the Richmond-Charlotte* Corridor. This independent engineering study examined specific infrastructure improvements needed to implement high-speed rail between Richmond and Charlotte to achieve a travel time goal of 4 hours and 25 minutes. The FRA report supports and complements the findings of the Tier I EIS for the Southeast High Speed Rail Corridor between Washington, D.C. and Charlotte. It also provided technical assistance that will be used in developing the Tier II documents for the corridor.

- 2007: The Draft Tier II EIS continues. In January, the Virginia Department of Rail and Public Transportation approved a grant agreement to allow extension of project study area to include Richmond Main Street Station (previous study limits stopped south of Petersburg.) The study area is now approximately 168 miles long from Richmond, VA to Raleigh, NC.

- 2010: Completion of the Draft Tier II EIS, Richmond to Raleigh, is expected in August 2009 with public hearings scheduled in December of that year.
- 2011: The Final Tier II EIS and Record of Decision are expected to be completed by the end of the year. Right-of-way and permit acquisition can then begin.
- 2010-2013: Final design, permitting, right-of-way acquisition, and final construction plans developed for project bidding based on segmenting the corridor into smaller projects.
- 2013-2017: Construction of the rail improvements. This is the goal for passenger service to begin over the preferred alternative as identified by the SEHSR Tier I EIS, Richmond to Raleigh, NC, dependent upon funding availability.

Project costs will be developed as part of the Tier II EIS and preliminary design. Although the costs are unknown at present, a rough project budget of $7.5 to $10 million per mile seems reasonable, which would result in a total cost of the capital improvements of approximately $1.3 to $1.7 billion between Richmond and Raleigh. This cost does not include the cost of the required passenger trainsets that would also be required for the new service. Operating costs would also be required for the passenger service. The EIS ridership forecasts estimated that there would be sufficient ridership once the high speed connection is completed between Charlotte and Washington D.C. to cover all annual operating expenses for the SEHSR route without state subsidies.

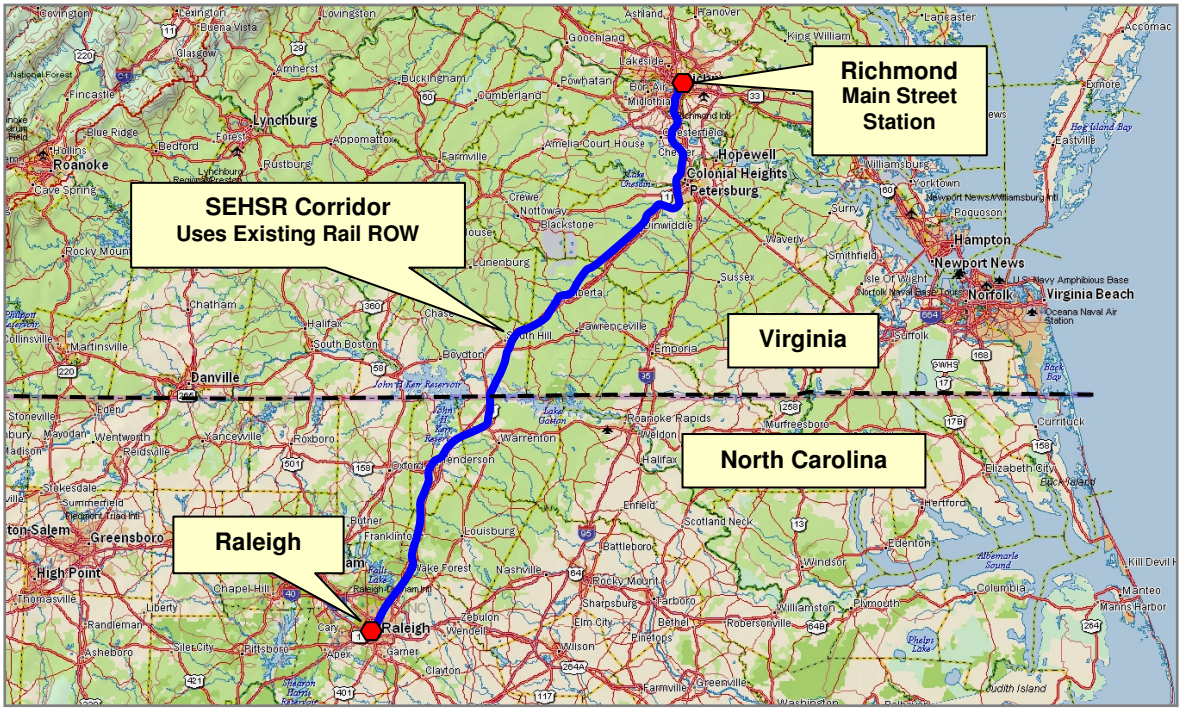


Figure B-8. Southeast High Speed Rail Corridor (Richmond to Raleigh)

B.7 Richmond/Hampton Roads Passenger Rail Tier I EIS

The Virginia Department of Rail and Public Transportation (DRPT) is currently investigating improved passenger rail service between Richmond and Hampton Roads to ultimately connect to the Southeast, Northeast and Mid-Atlantic regions as an extension of the Southeast High Speed Rail Corridor (SEHSR). This could include improvements to existing service or the development of new rail service to accommodate frequent passenger trains.

DRPT is examining potential routes and possible environmental impacts for more frequent conventional service and higher speed rail service. In December 2009, the draft report (Draft EIS) was published by DRPT subject to EPA review and is available for public review and comment. The document is available on the project website and in regional libraries. Public hearings will be held in the project area and announced through e-mail, newspaper advertisements, and press releases to regional media.

Two previous studies of passenger rail service improvements between Richmond and Hampton Roads have been conducted. In 1999 the Virginia Department of Transportation (VDOT) completed *the I-64 Major Investment Study*, which included recommendations for enhanced intercity rail service on the Peninsula. In 2002, DRPT completed *the South Hampton Roads High Speed Rail Feasibility Study* which reviewed the feasibility of high-speed rail between Richmond and South Hampton Roads via Petersburg and the U.S. Route 460 Corridor.

The EIS project area generally follows the Richmond to Hampton Roads Corridor and includes two routes, the existing Amtrak route from Richmond to Williamsburg to Newport News via the CSXT alignment and another route south of the James River along the Norfolk Southern (NS) alignment between Petersburg and Norfolk.

The project is currently focusing on five alternatives: the No Action Alternative, the Status Quo Alternative, Build Alternative 1, Build Alternative 2a, and Build Alternative 2b. A location map is shown in Figure B-9 and additional details are provided below.

- Status Quo Alternative
  This alternative shows what would happen if no major improvements are made—service would remain exactly as it is today. This alternative includes two daily round trips on the Peninsula only. Trains would continue to operate at a maximum of 79 mph between Newport News and Richmond. The two trains represent Amtrak's existing train service. Amtrak serves the Newport News Amtrak Station, Williamsburg Station and Richmond Main Street Station.

- No-Action Alternative
  This alternative shows what would happen if no major improvements are made beyond what is included in the existing regional transportation plans. It includes three daily round trips on the Peninsula only. Trains would continue to operate at a maximum of 79 mph between Newport News and Richmond. The three trains represent Amtrak's two existing trains plus one additional daily round trip planned by Amtrak in the future. Trains would serve the Newport News Amtrak Station, Williamsburg Station and Richmond Main Street Station.

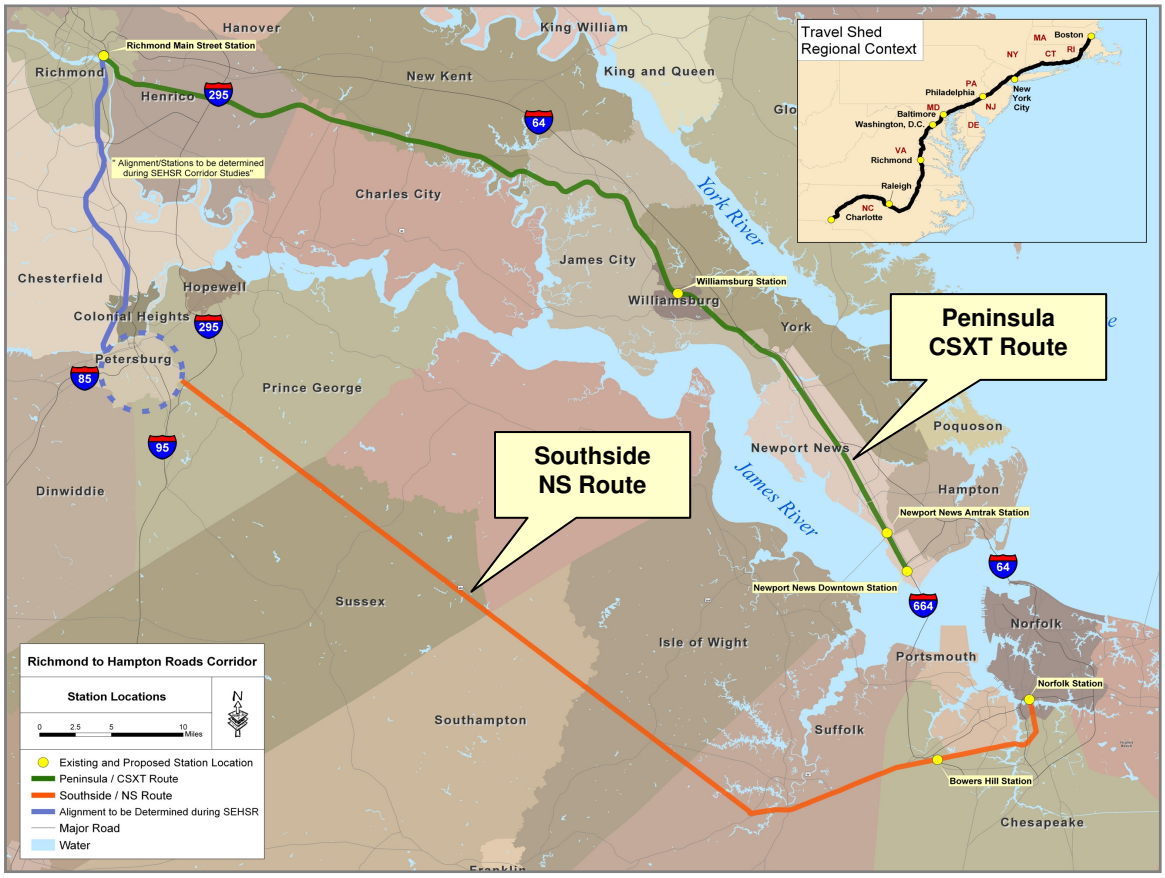


Figure B-9. Richmond/Hampton Roads High Speed Rail Alternative Routes

- Alternative 1
  Serves both the Peninsula and the Southside, with three daily round trips on the Peninsula and six daily round trips on the Southside. The Peninsula service would remain the same as in the No-Action Alternative, with three 79 mph maximum speed daily round trips between Newport News and Richmond serving the Newport News Amtrak Station, Williamsburg Station and Richmond Main Street Station. The Southside service would include six daily round trips operating at speeds of 90 mph or 110 mph between Downtown Norfolk, Chesapeake (Bower's Hill Station), Petersburg and Richmond Main Street Station.

- Alternative 2a
  Serves both the Peninsula and the Southside, with six daily round trips on the Peninsula and three daily round trips on the Southside. The Peninsula service would include six daily round trips operating at maximum speeds of 90 mph or 110 mph. This alternative would serve the proposed Newport News Downtown Station rather than the existing Newport News Amtrak Station. The Peninsula trains continue to provide service to Newport News, Williamsburg and Richmond Main Street Station. The Southside route of Norfolk, Bower's Hill, Petersburg and Richmond Main Street Station would be served by three 79 mph daily round trips.

- Alternative 2b
  Serves the Peninsula only, with nine daily round trips. Trains would operate at maximum speeds of 90 mph or 110 mph, providing service to the proposed Newport News Downtown Station rather than the existing Newport News Amtrak Station. Trains would continue to provide service to Williamsburg and Richmond Main Street Station.

The project area generally follows the Richmond–Petersburg–South Hampton Roads route (Southside) and the existing Amtrak route from Richmond–Williamsburg to Newport News (Peninsula). This rail service would help manage traffic congestion between Richmond and Hampton Roads while providing an attractive and competitive new transportation choice, including a connection to the Southeast High Speed Rail Corridor.

Project costs vary depending upon the alternative, but current estimates range from $233 million to $497 million for initial capital improvements to rail infrastructure – not including required trainsets and annual operating costs.

B.8 Roanoke Region Intermodal Facility

The Virginia Department of Rail and Public Transportation (DRPT) today released its final report on the Roanoke Region Intermodal Facility in April 2008.

In January 2008, the *DRPT Economic Assessment Report* confirmed that the intermodal facility, as part of the Heartland Corridor initiative, could achieve significant economic benefits for the Roanoke region, including an increase in annual employment of up to 2,900 jobs and tax revenues of up to $71 million annually. The Heartland Corridor multi-state freight rail initiative will save more than 30 hours over the current freight rail shipping time between the ports of Virginia and the Midwest, provide new access to the global marketplace and remove 150,000 trucks from Virginia's highways each year. The strategic location of an intermodal facility in the Roanoke region will help manage truck traffic and improve freight shipments along both the I-81 and Route 460 corridors.

DRPT, in coordination with industry experts and resources provided through a variety of relevant state agencies, project partners and engineering firms, conducted a comprehensive 16-month review of the ten proposed site locations. Through this analysis, DRPT has concluded that the Elliston site is the only feasible site for the location of the Roanoke Region Intermodal Facility.

Shown in Figure B-10, the Elliston site is located on the Heartland Corridor rail line, provides unimpeded access for both highway and rail traffic, and supports efficient intermodal operations at a total site cost of $35.5 million.

The Roanoke Region Intermodal Facility is part of the multi-state Heartland Corridor freight rail initiative, which will increase capacity and reduce freight shipping time between Hampton Roads, Va. and Chicago by up to 1.5 days. Intermodal facilities serve as a transfer point for freight shipping between trucks and rail. Just one intermodal train has the equivalent carrying capacity of 200 long haul trucks, providing a competitive shipping option and reducing the number of trucks on highways.

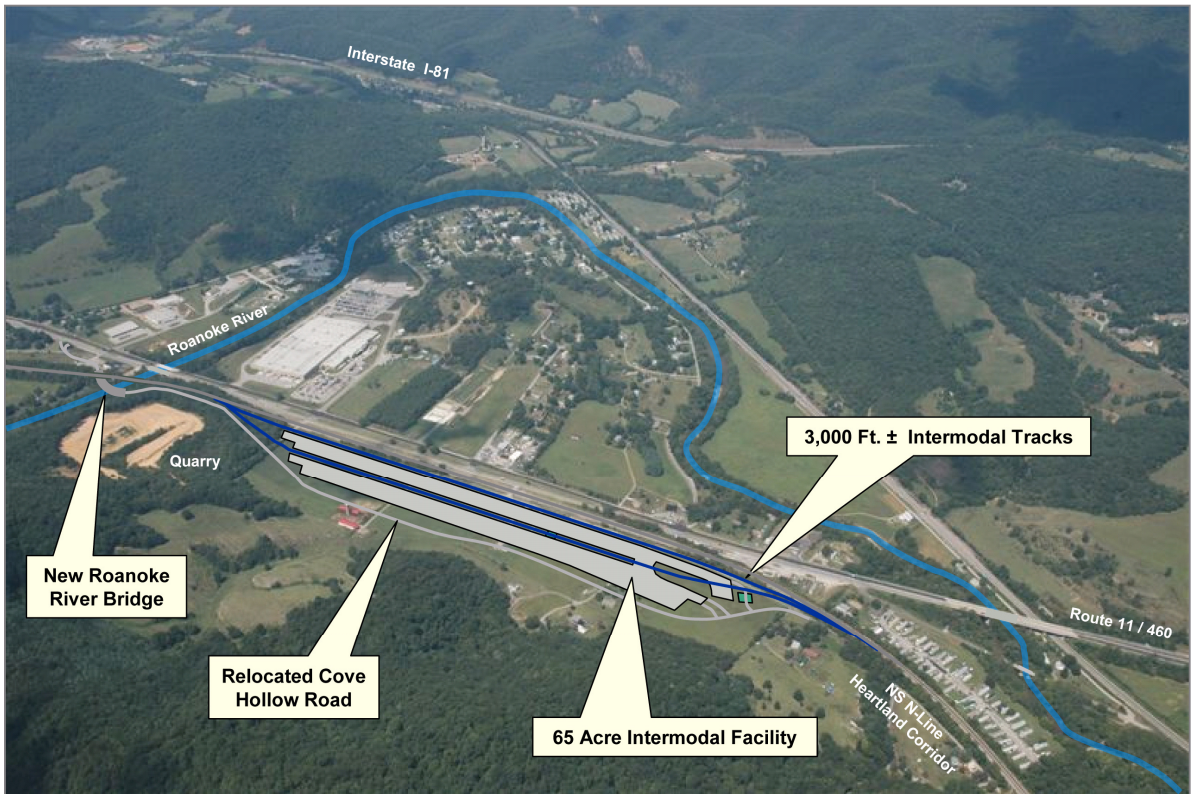


Figure B-10. Proposed Roanoke Region Intermodal Site at Elliston

B.9 Richmond Area Rail Improvements

The Richmond to Washington, D.C. segment of the Tier I Final EIS Record of Decision by FRA and FHWA for High Speed Rail between Charlotte and Washington, D.C. identified and approved two potential passenger rail corridors between Richmond and Doswell. DRPT is currently performing an Environmental Assessment of both alternatives in order to select a preferred alignment as part of the multi-state high speed passenger rail network under development. Additional improvements along the corridor may also be required to accommodate freight rail capacity. Heavy rail traffic and capacity constraints create congestion for both passenger and freight rail operations through Richmond – particularly at the CSX Acca Yard as shown in Figure B-11.

The study evaluation will focus on two routes: the Western Route along the CSX rail line and the Eastern Route along the Buckingham Branch rail line as shown in Figure B-12. The Southeast High Speed Rail project has provided analysis of the Western Route, which will be updated for the purposes of this study. Additional information on this route may be found at www.sehsr.org. On April 6, 2009 DRPT submitted a Decision Brief: Alternative Considered but Dismissed, Richmond to Doswell, VA to the FRA. On May 19, 2009, the FRA wrote that " the Buckingham Branch has been shown to fail as a reasonable alternative and the FRA concurs that this alternative may be dismissed from further consideration".

Figure B-11. CSX Acca Yard

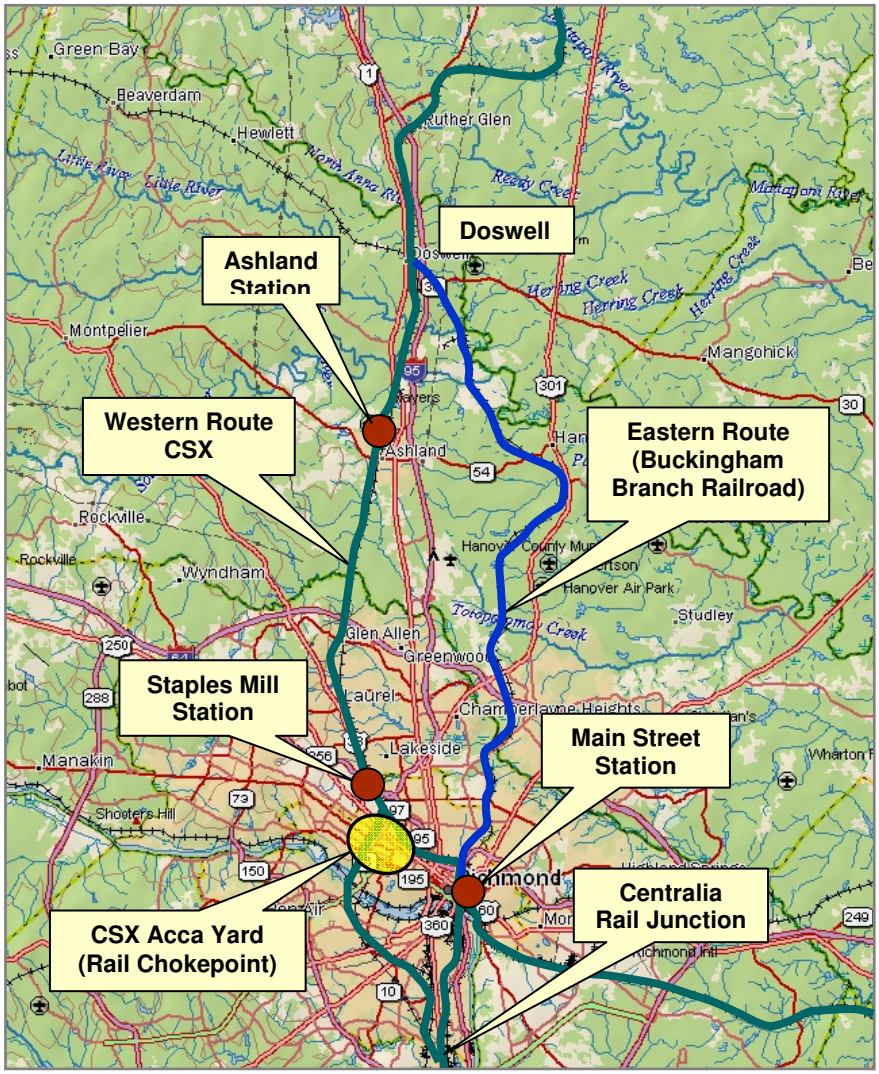


Figure B-12. Richmond Passenger Rail Study (Western and Eastern Routes)

Potential improvements under evaluation in the EA include:

- Signal and crossing improvements in addition to existing track upgrades and six miles of potential new main line tracks within the existing right-of-way along the Buckingham Branch rail line from Hospital Street in Richmond to Doswell.

- Signal and crossing improvements in addition to existing track upgrades within existing right of way between Main St. Station, Staples Mill Station and Doswell, including east mainline evaluation alongside Acca Yard.

- A new five acre multimodal transit center along the Buckingham Branch rail line in Hanover County. Three potential site locations will be identified in the study. Reinstallation of two main line tracks to the east and west along the CSX N and C&O Piedmont line between Main Street Station and AM/Bone Dry Junction. The addition of eight miles of third main line track within existing right-of-way between Doswell and Fredericksburg.

- Evaluation of potential overnight train storage in Newport News for passenger rail trains, including the addition of new tracks within the existing CSX right-of-way. Additional conceptual design and cost estimation of double track improvements on the entire Buckingham Branch rail line from Doswell to Richmond.

Additional evaluation of track segments to the east of Richmond will be performed for the potential addition of passing sidings within the existing right-of-way at a later date.

DRPT's focus for this project is to identify important environmental, engineering and other relevant factors to be considered for each of the potential improvements identified above. Additional study and significant funding will be required to advance these initiatives into construction.

APPENDIX C

Statewide Shortline Railroad Improvement Plan
Technical Memorandum November 2, 2009

Insert Memorandum Here

Statewide Shortline Railroad Improvement Plan

Technical Memorandum

November 2, 2009

DRPT

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A. Introduction

This Technical Memorandum details the results and recommendations arising from a review of the Virginia Shortline Railroads focused on the preservation of the railroads and the development the railroads to continue to provide safe and efficient service to businesses in the Commonwealth. The field data for this technical memorandum was collected in the summer of 2008. Additional input was requested and received from the shortlines individually and through the Virginia Railroad Association.

Short lines have become a critical component of the rail industry and produce benefits to shippers and local communities trying to support economic development to many industries. Short lines act as the serving railroads for approximately one-third of all rail shipments originating or terminating in Virginia. It is important for the short lines to adequately handle 286,000 pound railcars and container shipments in order to interface with the Class I railroads.

In Virginia, the short lines are comprised of eight railroads authorized by the U.S. Surface Transportation Board with a total of 641 route miles and two terminal switching railroads; the Deep Water Terminal Railroad with a total of four miles of track, and the Norfolk & Portsmouth Belt Line with 36 miles of track. Short lines often serve as the first or last link in the business to business delivery by providing the intensive switching operations that are not profitable for the Class I railroads.

Today's short lines were built many decades ago using the standards of the time. The older standards used lighter rails and less ballast or simply cinders. Many of the lines were previously owned by Class I railroads who divested themselves of the lines as a consequence of low traffic volumes or declining revenues. Those shortline railroads experienced deferred maintenance in the years prior to being divested.

Shortline railroads have, in many cases, been able to increase or maintain the traffic volume, but do not have the financial strength necessary to invest in track and infrastructure upgrades beyond the basic maintenance required to continue operations. The combination of lack of programmed maintenance and the trend towards the use of 286,000 pound railcars (nearly a standard on today's railroads) have created a need to invest in the infrastructure above the level that Shortlines can afford.

The 286,000 pound railcar is the new standard rail car, replacing the 263,000 pound railcar, for transporting heavy bulk materials, like coal, grain and lumber. Studies have shown that the 286,000 pound railcars can operate on rail as low as 90 pounds per yard if all the other track components are in good shape with tight rail joints. Given common soil conditions found in the State of Virginia, it is more cost effective in many cases to install a heavier weight rail that is stronger and resists bending to protect the investment to the rail infrastructure.

All eight of Virginia's shortlines are classified by the Federal Railroad Administration (FRA) as Class III railroads (line-haul carriers with annual revenues less than $25 million) The FRA includes shortlines and terminal switching railroads under the heading of 'local' railroads.. A brief description of the existing shortline railroads is presented in the following sections.

B. Existing Shortline Railroads in the Commonwealth

The following narratives describe the shortline railroads operating in Virginia. A map of these shortlines is presented in Figure 1 which follows the narratives. Also following the narratives is Table 1 that presents a summary of total carloads by railroad and the types of commodities carried by the railroads.

Bay Coast Railroad (BCR) – operates the former Eastern Shore Railroad line. Shortline railroad operations on the eastern shore began on October 1, 1981 over the former Virginia and Maryland line from Pocomoke City, Maryland, to Norfolk, Virginia. This north-south route on the Delmarva Peninsula was originally established in 1884 and is still the most direct route between the Northeast and Norfolk, Virginia. The Bay Coast Railroad consists of 70 miles of FRA Class II mainline and a 26 mile car float operation from Cape Charles to Norfolk, Virginia. 66 miles of the BCR are located on the eastern shore while the remaining 4 are located on the mainland in Norfolk.

The Bay Coast Railroad uses a rail ferry service to span the 26 mile water route across the Chesapeake Bay between Cape Charles and Norfolk, Virginia. Tug boats are contracted to move the two barges (car floats) of 25 and 15 car capacity. This float operation is one of only two remaining in the Eastern United States and is the longest water route in the country. This car operation has been in service since April 1885.

The Bay Coast Railroad interchanges with the Norfolk Southern Railway at both Norfolk, Virginia and Pocomoke City, Maryland with yards in Cape Charles and Little Creek, Virginia.

Gerald M. Moore asphalt and concrete facility in Nassawadox, VA

The Gerald M. Moore facility is the largest stone customer on the BCR.

Buckingham Branch Railroad (BB) – is a family owned FRA Class III short-line railroad operating over 217 miles of historic and strategic trackage in Central Virginia. The Bryant family owns and operates a 17.3 mile long run between Dillwyn and Bremo, Virginia and is also known as the Buckingham Division. The Buckingham Branch Railroad also leases and operates a 200 mile long line of railroad from Richmond to Clifton Forge, Virginia. This run is better known as the Richmond Alleghany Division, and is further divided into the North Mountain, Washington & Piedmont Subdivisions. The company's headquarters are in Dillwyn, Virginia in the former Chesapeake and Ohio Railroad (C&O) station, a historic landmark in the community.

The Buckingham Branch Railroad is primarily a freight railroad and receives freight cars from CSX Transportation at Strathmore, Doswell and Clifton Forge and Norfolk Southern at Charlottesville, Orange and Waynesboro. The Shenandoah Valley Railroad also provides freight cars at Staunton.

Outbound freight on the Buckingham Division consists mainly of wood chips, lumber, crushed slate and kyanite ore. Inbound freight includes fertilizer and road salt.

The Richmond Alleghany Division carries both inbound and outbound products also including; plastic pellets for film production, lumber & gypsum board for local building suppliers, coal for a university steam plant and newsprint for Richmond Newspapers.

Amtrak's Cardinal at Charlottesville, VA

Virginia Southern Division is a 56 mile line that runs from Burkeville, Virginia to Clarksville, North Carolina. The portion of the line between Clarksville, Virginia and Oxford, North Carolina has not been in use for more than a decade and is overgrown with vegetation. Virginia Southern Division carries both inbound and outbound products also including; coal and wood chips. The customers include Stone Paper and Mecklenburg Co-Gen.

In addition to the freight traffic carried by the BB, the railroad also hosts a 130 mile ling route segment of Amtrak's Cardinal train. The BB is the only shortline in Virginia that hosts Amtrak service.

Chesapeake and Albemarle Railroad (CA) – is a FRA Class III short-line railroad operated by the North Carolina and Virginia Railroad and is owned by RailAmerica. The Chesapeake and Albemarle Railroad started operations on April 2, 1990. They operate on 82 miles of track from Chesapeake, Virginia to Edenton, North Carolina. Chesapeake and Albemarle Railroad is headquartered in Ahoskie, North Carolina and interchanges with both Norfolk Southern Railway at Chesapeake, Virginia and CSX Transportation at Portsmouth, Virginia (via Norfolk & Portsmouth Belt Line). The railroad was part of the now defunct Norfolk and Southern Railroad (not to be confused with the Class 1 Railroad Norfolk Southern), which continued south crossing the Albemarle Sound and onto Mackeys Ferry and Plymouth.

The North Carolina and Virginia Railroad averaged 6,329 carloads in 2007 and current customers include; Albemarle Builders, Albemarle Distribution, Royster Clark, Central Grain, Universal Forest Products, Currituck Grain, Hobbs Implement, Lebanon Agricorp, C.A. Perry & Sons, Commercial Ready-Mix, Coastal Ready-Mix, Roberts Bros., Southern States, United Piece & Die, IMC, Vulcan Materials and F.P. Wood & Son.

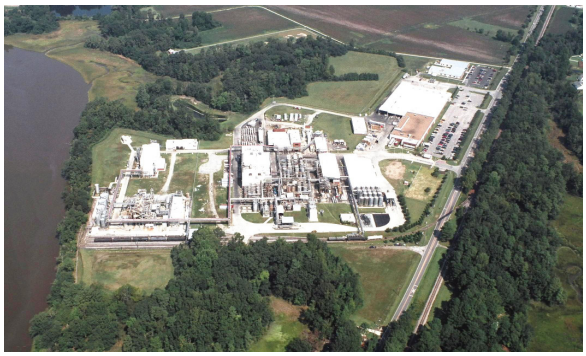
Chesapeake Western Railroad (CHW) – was an intrastate railroad in west-central Virginia. It extended from Elkton on the South Fork of the Shenandoah River in Rockingham County to Stokesville in Augusta County at the foot of the Allegheny Mountains. At Elkton, it interchanged with the Norfolk and Western Railway. At Harrisonburg it interchanged with the Southern Railway.

Construction began in 1885 in Harrisonburg by the Chesapeake and Western Railroad, and proceeds both east and west. To the west, Bridgewater was the original terminus, but the line was extended to Stokesville by 1901 by the newly reorganized Chesapeake Western Railway. In 1933 the line was cut back to Bridgewater, and later to Dayton. To the east the line reached Elkton by 1896, where the line's main yard and shops were constructed.

In 1938 the line was bought by the line's general manager with the assistance of Norfolk and Western, which assumed direct control in 1954. In 1943, the Baltimore and Ohio's Valley Road of the Virginia line, which ran between Harrisonburg and Lexington was purchased by the CHW, though the portion from Staunton to Lexington was promptly dismantled. Later, a portion of the same line to the north of Harrisonburg as far as Mt. Jackson was added.

The line continues to operate today as the Chesapeake Western Branch of Norfolk Southern a FRA Class III short-line. A portion of the line south of Harrisonburg to Pleasant Valley is owned and operated by the Shenandoah Valley Railroad (SV).

Commonwealth Railway, Inc. (CWRY) – is a FRA Class III short-line railroad operating 16.5 miles of track of the former Norfolk, Franklin and Danville Railway line from Suffolk, to Portsmouth, Virginia. Its main office is in the Wilroy area of Suffolk, Virginia. Commonwealth Railway is owned by Rail Link Inc. CWRY interchanges with Norfolk Southern and CSX in Suffolk, Virginia.



BASF Chemical Portsmouth, VA

The Commonwealth Railway services several large shippers including the BASF Chemical plant and the Maersk container terminal in the Portsmouth. Planned service increases include the Craney Island Marine Terminal to be built by the Virginia Port Authority.

Deepwater Terminal Railroad (DWT) - The Port of Richmond Deepwater Terminal Railroad (DWT) owns approximately four miles of track serving the Port of Richmond on the James River. DWT is a terminal and switching railroad served directly by CSX Transportation and by Norfolk Southern via switching rights. DWT is not recognized by the FRA as a shortline railroad but it recognized by Virginia as a non-Class I railroad facility. DWT extends south between the James River and I-95 within Richmond City limits and primarily serves the Port's imports and exports, and several distribution customers on the line.

Norfolk and Portsmouth Belt Line (NPBL) – is a FRA Class III belt line railroad that has been operating in Norfolk, Portsmouth and Chesapeake, Virginia since 1896. The NPBL is owned fifty-seven percent by Norfolk Southern and forty-three percent by CSX Transportation. The Belt Line interchanges with Chesapeake and Albemarle Railroad, CSX Transportation, Bay Coast Railroad (formerly the Eastern Shore Railroad) and Norfolk Southern. The Belt Line is a terminal switching company that owns 36 miles of track, (plus 27 miles of trackage rights) and links commerce around the deepwater port from Norfolk International Terminal (NIT) to Portsmouth Marine Terminal and including the Southern Branch of the Elizabeth River.

Locomotives and Intermodal flat cars

North Carolina and Virginia Railroad (NCVA) – is a FRA Class III short-line railroad. The NCVA started November 1, 1987 on a former Seaboard Coast Line Railroad from Boykins, Virginia to Tunis in Cofield, North Carolina. The North Carolina and Virginia Railroad is headquartered in Ahoskie, North Carolina and interchanges with CSX Transportation in Boykins, Virginia.


NUCOR Steel Plant

The North Carolina and Virginia Railroad's current customers include; Ahoskie Fertilizer, Colerain Peanut, Southern States, Georgia-Pacific, Golden Peanut Co., Kerr Plastic, Perdue Farms, Resinall Corp., Rich Square Cotton Gin, Royster Clark and Severn Peanut. NUCOR Steel is the NCVA's largest shipper. The North Carolina and Virginia is owned by RailAmerica.

Shenandoah Valley Railroad (SV) – is a privately owned intrastate FRA Class III short-line railroad extending northward from Staunton, Virginia in Augusta County and Rockingham County. The line was originally built by the Baltimore and Ohio Railroad and later purchased in 1942 by the Chesapeake Western Railway. The new short-line was formed in 1993 by several major shippers, and adopted the old historic name which was not in use. Shenandoah Valley Railroad is operated under contract. The Bay Coast Railroad (BCR) was the contract operator between April 2003 and August 2006. As of September 1, 2006 the Durbin and Greenbriar Valley Railroad (DGVR) became the contract operator. The railroad interchanges with the Buckingham Branch Railroad (BB) in Staunton, along with Norfolk Southern in Pleasant Valley, Virginia.

Winchester and Western Railroad Co. (WW) – is a 54 mile FRA Class III short-line railroad that operates between Gore and Winchester, Virginia, and from Winchester, though the Eastern Panhandle of West Virginia, to Hagerstown, Maryland. The Winchester and Western is exclusively a freight line with connections to CSX Transportation and Norfolk Southern.


Winchester & Western – Martinsburg, VA

The Winchester and Western Railroad has a partnership with H.H. Omps Trucking to transport bulk materials from Omps' facilities in Winchester, VA. and serves several quarries on the line.

Existing Class III Shortline RR System

Bay Coast Railway (BCR)
Buckingham Branch (BB)
Chesapeake and Albemarle (CA)
Chesapeake and Western (CHW)
Commonwealth Railway (CWRY)
Deepwater Terminal Railroad (DWT)
Norfolk and Portsmouth Beltline (NPBL)
North Carolina and Virginia (NCVA)
Shenandoah Valley (SV)
Winchester and Western (WW)

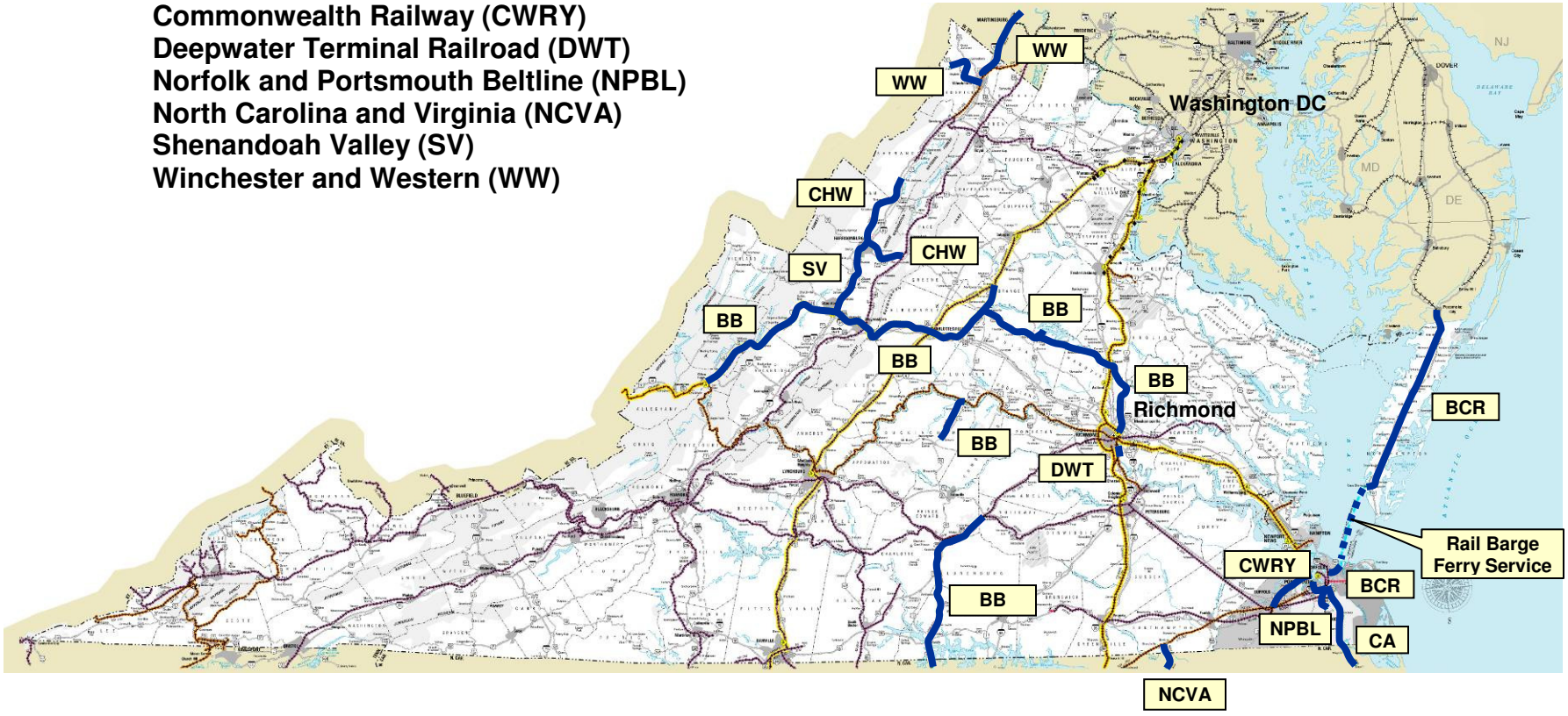


Figure 1 - Shortline Railroad System

Table 1 - Shortline Railroads – Summary of Annual Carloads (2008)

Commodity	Bay Coast Railroad	Buckingham Branch Railroad	Chesapeake & Albemarle Railroad	Chesapeake Western Railroad	Commonwealth Railway, Inc.	Norfolk & Portsmouth Belt Line	North Carolina & Virginia Railroad	Shenandoah Valley Railroad	Winchester & Western Railroad Co.
Base Metals						X	X		X
Milled Grain Products	271	X	X	X		X	X	X	
Gravel and Crushed Stone	911	X	X			X			X
Plastic and Rubber	61	X				X	X		X
Wood Products	34	X	X				X	X	
Waste and Scrap						X	X	X	
Misc. Manufactured Products			X			X			
Nonmetallic Minerals		X				X			
Paper	179	X					X		X
Basic Chemicals	66	X			X	X	X		
Transportation Equipment						X			
Metallic Ore & Concentrates		X							
Machinery	3					X	X		
Cargo – Not Otherwise Specified	1502	X	X		X	X	X	X	X
TOTALS	3,027	546,766	6,329	N/A	839*	21,470	23,974	1,305	6,277

* Does not include containerized cargo from the new APM Terminal in Portsmouth which opened in late 2008 and will generate many new carloads in the future (as will the future VPA Craney Island Marine Terminal to open in 2017).

C. Benchmark Rail Grant Programs with Other State's Programs

Other State-funded Short line railroad grant programs were examined to use as a benchmark for Virginia's program. The other state-funded programs mainly consist of grants and low interest loans to public and private entities. The programs are usually managed by the states' departments of transportation and their economic development commissions. Many of the programs require matching funds be provided, some states also require job creation or retention as a precursor to funding. Short line rail funding is delivered through many different venues including, transportation infrastructure improvement, industrial development, highway safety, congestion relief, and homeland security.

The programs are typically used to fund maintenance, rehabilitation, and construction of rail lines and facilities. Some states also make funds available to purchase existing or abandoned rail lines to preserve them for current or future use. There are also programs for safety improvements (grade crossings) and congestion relief. A projects value to the public is sometimes expressed in terms of how many truckloads of freight are removed from the highway system by improvements to the rail system.

Short line railroads provide a vital link between local industrial sidings and the national rail system. They provide a low cost transportation alternative for industries in outlying areas to access the national system. Without the short lines these industries would have to move to more centralized urban areas or rely on trucking which is more expensive, increases congestion and causes more pollution. Industries such as farming and mining are, by their nature, located "off the beaten path". Shortlines assist industries and local economies through a cost effective rail transportation link to the global markets and economies.

Funding for short line railroads has also come from non-traditional sources. New York New Jersey Rail LLC received over $700,000 from the Department of Homeland Security under their Port Security Grant Program for security upgrades to their New York cross harbor rail float operations. These operations are similar to those of the Bay Coast Railway.

The following tables summarize the programs of the other state-funded programs surveyed.

New Jersey

Program	Funding	Terms
New Jersey Rail Freight Assistance Program	$23.6 million for 17 projects	Acquisition Assistance: Funds for the acquisition of a railroad line or property for rail freight services. Limited to properties identified as part of the State Core Rail System. Rehabilitation Assistance and Facility Construction Assistance: Requires contributions to be made by the beneficiaries of the improvement project, 90% state share with 10% match. Assistance will be made available when the public benefits derived exceed the costs incurred for the specific project.

North Carolina

Program	Funding	Terms
Congestion Relief and Intermodal Transportation	$86 million for fiscal year 2009- 2010	Maximum amount of grant for any one region is 33% of fund.
Short Line Railroad Grants	$58 million/12 yrs	Grants shall not exceed 50% of the non-federal share and must be matched by equal or greater funding from the applicant. Total grants may not exceed $5 million per fiscal year.
Rail Access to State Ports	$80 million/12 yrs	Grants shall not exceed 50% of the non-federal share and must be matched by equal or greater funding from the applicant. Total grants may not exceed $15 million per fiscal year.

Ohio

Program	Funding	Terms
Freight Development/Rail Spur Program		Grant funding generally limited to projects where significant job creation or retention is involved (25 or more jobs). Loan financing available otherwise. Loan package is a 5 year term; interest rate is 2/3 of prime. Collateral or letter of credit required.
Railroad Rehabilitation Program		Provides assistance to public or private entities for the rehabilitation of rail lines to improve safety or efficiency.
Rail Line Acquisition Program		Provides assistance for the acquisition of rail lines to prevent the cessation of service or to preserve the line or right of way for future rail development. Assistance to acquire a line if the acquisition can enhance the lines viability.
Hazard Elimination and Surface Transportation Program	$15 million	Funds highway-railroad grade crossing safety improvements or corrective activity designed to alleviate highway-railroad safety problems.

Wisconsin

Program	Funding	Terms
Freight Railroad Preservation Program	2007-2009 Budget $ 22 Million	Grants up to 80% of the cost to: purchase abandoned rail lines in an effort to continue freight service, or for the preservation of the opportunity for future rail service; rehabilitate facilities such as tracks or bridges, on publicly owned rail lines. Grants can cover 100% of the cost of acquiring land.
Freight Rail Infrastructure Improvement Program		Provide up to 100% loans for projects that: connect an industry to the national rail system; make improvements to enhance transportation efficiency, safety and intermodal freight movement; accomplish line rehabilitation; develop the economy. Loans are generally limited to no more than $3 million. Total amount committed non-rail purposes (loading equipment, grain bins, warehousing) generally limited to $1.5 million. Loans require a minimum of 2% interest per annum.

Pennsylvania

Program	Funding	Terms
Rail Freight Assistance Program	$11 million	Funds are available on a matching grant basis for maintenance, construction and combination projects, to restore, maintain, or improve an existing railroad line or to construct a new rail line or rail associated facility, which have an estimated useful life in excess of five years. Does not include acquisition costs of land, rights of land, buildings or building materials to construct a new building. Maximum state funding for any project is $700,000 or no greater than 70% of the actual project cost, whichever is less. Funding for the construction portion of any project cannot exceed $250,000.
Rail Transportation Assistance Program	$30 million	Matching grant basis with the state share not to exceed 70% of actual total eligible project costs.
Pennsylvania Infrastructure Bank		Loan can be used for rail infrastructure construction and rail rehabilitation. No minimum or maximum loan amount. Maximum term is 10 years, shorter terms preferred. The interest rate is one-half the prime lending rate at the time of application.
Infrastructure Development Program		Grant and low interest loan financing for public and private infrastructure improvements. Maximum amount $1.25 million, no more than 20% of the annual appropriation for a single municipality. Grants for public infrastructure: Loans to private businesses at 3% interest, up to 15 year term, 2:1 private to public match. $25,000 cost per job to be created within 5 years or 10 new full time jobs whichever is greater.

D. Program of Improvements

This report presents information on two broad categories of needs; Programmatic Needs, and Project Needs. Programmatic Needs are defined in this document as the recurring replacements of rail and ties, track surfacing, and drainage work required to continue reliable and safe operations of the line. Project Needs are defined as all other work outside of the programmatic needs. The Project needs would include bridges, grade crossings, switch work, and capacity and efficiency improvements.

Programmatic Needs

The criteria used to develop the Programmatic Needs were developed by reviewing the existing conditions on the shortline railroads and evaluating the work required to meet the following goals:

- In general all shortline railroads hauling freight will be improved to a sustainable FRA Class 2 track condition, and bridges to a "state of good repair."
- Shortline railroads hosting Passenger service will be improved to a sustainable Class 3 for Passenger for passenger segments, and bridges to a "state of good repair."
- Shortline railroads with existing or potential 286,000 pound cars will be improved to a minimum rail size of 112 pound section, and bridges rated for 286,000 pound axle loading at the timetable speed of the track segment.

Table 2 presents the FRA Track Safety Criteria contained in the Code of Federal Regulations (CFR) Title 49 Section 213. These criteria form the metrics that are the basis of FRA's safety enforcement. In order to meet the first goal of the project in providing a FRA Class 2 Track Safety Standard, the following items need to be addressed:

1. Tie condition; it was assumed that the average life of a tie is approximately 30 years for the State of Virginia. Specific field locations and environmental conditions may lead to significant variation in tie life. From field observations, most lines are operating at minimum Class 2 safety conditions, in order to preserve or to reach a sustainable condition, the short lines will need to install about 244 safety ties per mile every six years. Those segments operating above Class 2 safety conditions will require about 398 safety ties per mile every six years to reach Class 3 safety conditions. .
2. Ballast and surface condition, most lines have fouled ballast conditions and can use new ballast and surfacing in order to meet the above requirements.

3. Jointed Rail, from field observation lines with jointed rail are showing signs of loose joints with evidence of rail end batter and bent rails at the joints. Lines that carry 286,000 pound railcars need to tighten the joints yearly or weld the joints.
4. Bridges need to be inspected and load rated to see if they meet the new loads from the 286,000 pound cars.
5. Culverts and drainage ditches are continuous maintenance needs in order to protect the investments made to improve tie and ballast conditions.

Project Needs

The development of the Project Needs was performed by the shortline railroads themselves. The railroads submitted their projects as part of the Rail Preservation Program funding applications and through discussions held with the shortline railroads during the preparation of this report.

Table 2 - FRA Track Safety Standards

Section	Description	1	2	3	4	5	6
213.9	Max. allowable **freight speed** (mph)	10	25	40	60	80	110
213.9	Max. allowable **passenger speed** (mph)	15	30	60	80	90	110
213.53	Min. allowable **gage**	56”	56”	56”	56”	56”	56”
213.53	Max. allowable **gage**	58”	57 ¾”	57 ¾”	57 ½”	57 ½”	57 ¼”
213.55	**Alignment: Tangent** – Max. deviation of mid-offset from 62’ line	5”	3”	1 ¾”	1 ½”	3/4”	1/2”
213.55	**Alignment: Curves** – Max. deviation of mid-ordinate from 62’ chord.	5”	3”	1 ¾”	1 ½”	5/8”	3/8”
213.63	The **runoff** in any 31’ of rail at the end of a raise may not be more than…	3 ½”	3”	2”	1 ½”	1”	1/2”
	The deviation from **uniform profile** on either rail at the mid-ordinate of a 62’ chord may not be more than…	3”	2 ¾”	2 ¼”	2”	1 ¼”	1/2”
	Deviation from **designated elevation on spirals** may not be more than…	1 ¾”	1 ½”	1 ¼”	1”	3/4”	1/2”
	Variation in **x-level on spirals** in any 31’ may not be more than…	2”	1 ¾”	1 ¼”	1”	3/4”	1/2”
	Deviation from zero **x-level** at any point on tangent or from designated elevation on curves between spirals may not be more than…	3”	2”	1 ¾”	1 ¼”	1”	1/2”
	The **difference in x-level** between any 2 points less than 62’ apart on tangents and curves between spirals may not be more than…	3”	2”	1 ¾”	1 ¼”	1”	5/8”
213.109	Min. number of **non-defective ties**, (effectively distributed) in 39’ track segment.	5	8	8	12	12	14
213.109	Max. distance to centerline of non-defective **tie from rail joint** location.	24”	24”	18”	18”	18”	18”
213.115	Rail end **mismatch-tread** – may not exceed…	1/4”	1/4”	3/16”	1/8”	1/8”	1/8”
213.115	Rail end **mismatch-gage** – may not exceed…	1/4”	3/16”	3/16”	1/8”	1/8”	1/8”
213.121d	Min. required number of **bolts** per rail, per joint for conventional jointed track	1	2	2	2	2	2
213.121e	Min. required number of **bolts** per rail, per joint for **CWR.**	2	2	2	2	2	2
213.143	**Guard check** gage may not be less than…	54 1/8”	54 ¼”	54 3/8”	54 3/8”	54 ½”	54 ½”
213.143	**Guard face** gage may not be less than…	54 1/8”	54 ¼”	54 3/8”	54 3/8”	54 ½”	54 ½”

E. Shortline Railroad Program Funding Needs

The cooperation of the various shortline owner/operators in providing background data for the development of the Statewide Rail Plan is appreciated. DRPT's evaluation of the existing condition and needs of the shortlines was performed with the assistance of DRPT's consultants, and was based on interviews and site visits with the shortline operators as part of the rail plan development. The evaluation was a general overview conducted for cost estimation purposes and not a detailed inspection of all shortline facilities. Project specific needs, such as major bridge upgrades or replacements, were provided by the shortline railroads, and are incorporated on a case-by-case basis.

Shortline Railroad Programmatic Needs

The Programmatic Needs are based on a life cycle approach to preserving the rail line and continuing and improving operations. Components are replaced on a regular schedule to gain the greatest life of the component while maintaining consistent reliability and safety conditions on the line. The useful life cycle of the wooden crossties was considered as the base component life and was set at 30 years. The work cycle was set to match the Department's six year funding cycle. As a result one fifth of the 30 year work cycle would be accomplished every six years. This establishes a consistent level of public funds and matching private funds that meets the programmatic goals of the program.

Estimates of the programmatic work were based on field reviews of the overall condition and the length of the shortline railroads, or estimates provided by the shortlines themselves. The work items were established to address meeting the FRA Safety Requirements, to protect Virginia's investment, and to preserving the rail line and continuing and improving operations.

Tie Change-out Production Machine

The tie replacement requirements are based on the FRA Safety Standards and provide only for replacing the minimum number of ties required to meet the Safety Class of track. The rail work item was provided to meet the requirements of today's cars and to accommodate future cars. The joint tightening work item is included to preserve the existing rail until it can be replaced under the program as well as to maintain the track surface to meet FRA Safety Standards. The ballast and surfacing items are

provided to meet the FRA Safety Standards, and to protect the investment made in ties and rail.

Although drainage work is last in this discussion, it is one of the most important work items needed to preserve and sustain the lines and to protect Virginia's investment. Poor drainage causes degradation in track surface and can cause premature tie failure. By funding drainage work, the Department protects its investment in the track surface, rail, and ties, and helps to sustain the line at conditions compliant with the FRA Safety Standards.

Tie Replacement, Ballast, Surfacing and Ditch Work on Shortline

The summary of the Programmatic Needs costs for both each six year cycle and the overall program cycle of 30 years shown in Table 3.

Table 3 - Shortline Rail Programmatic Needs

	One 6 Year Cycle	Program Cost 30 yr
Bay Coast Railroad	$4,357,967	$21,789,833
Buckingham Branch Railroad	$20,571,867	$102,859,333
Chesapeake & Albemarle Railroad	$5,105,047	$25,525,233
Chesapeake Western Railroad	$3,295,983	$16,479,917
Commonwealth Railway, Inc.	$996,107	$4,980,533
Deepwater Terminal Railroad	$280,155	$1,400,775
Norfolk &Portsmouth Belt Line	$2,241,240	$11,206,200
North Carolina & Virginia Railroad	$1,743,187	$8,715,933
Shenandoah Valley Railroad	$1,245,133	$6,225,667
Winchester & Western Railroad Co.	$3,569,940	$17,849,700
Total	**$41,850,208**	**$209,251,042**

Shortline Railroad Project Needs

The Project Needs identified in this report were provided by the shortline railroads themselves. The derivation of the cost numbers varies by each shortline railroad and may be constrained by the shortline's capital program. The railroads submitted their projects as part of the Rail Preservation Program funding applications and through discussions held during the preparation of this report. The railroads were the primary source for the estimated funding requirements for these projects, however some costs have been estimated by for this report by the Department.

The Project Needs are likely understated for the planning 2030 horizon. The Department expects there to be a continued need for project work to address safety and efficiency needs, specifically in the area of passing tracks and bridges.

The summary of the Programmatic Needs costs for the next six year plan is shown in Table 4.

The effects of the Federal Railroad Administration's new emphasis on railroad bridge inspections has not been fully realized and will likely result in a greater number of bridge projects being brought forward for funding.

Shortline Siding Conditions BEFORE Project Work

Shortline Siding Conditions AFTER Project Work

Table 4 - Shortline Rail Project Needs Current Six year Cycle Estimates

	Project Costs
Bay Coast Railroad	$224,000
Buckingham Branch Railroad	$44,363,000
Chesapeake & Albemarle Railroad	$1,300,000
Chesapeake Western Railroad	$0
Commonwealth Railway, Inc.	$1,875,000
Deepwater Terminal Railroad	$4,652,536
Norfolk &Portsmouth Belt Line	$6,444,000
North Carolina & Virginia Railroad	$0
Shenandoah Valley Railroad	$1,060,100
Winchester & Western Railroad Co.	$0
Total	**$59,918,636**

Total Shortline Railroad Funding Needs

The Programmatic needs over the next 30 years, and the currently identified Project Needs total over $209 million dollars. For the 2030 planning horizon, the level of Project needs can be expected to continue as the existing infrastructure ages and new problems are discovered. The Department expects an additional Project need of $250 million bringing the Total Shortline need for the 2030 planning horizon to $460 million dollars

Detailed Needs Description by Railroad

Bay Coast Railroad (BCR) – Total Funding Need $4,581,967:

- Program Needs

Tie Replacement (Safety Ties) Class 2	17,080	$1,451,800
Tie Replacement (Safety Ties) Class 4	0	$0
Ballast	35,000	$525,000
Surface Track	70.0	$700,000
Rail Replacement	4.7	$1,236,667
Joint bolt tighten	35.0	$94,500
Drainage/ditching	35.0	$350,000
		$4,357,967

- Project Needs

Total Project Needs $224,000

6. Cape Charles Division switching timber project. This project includes switching 23 sets of timbers. Estimated costs $184,000.
7. Little Creek Division switching timber project. This project includes switching 5 sets of timbers. Estimated costs $40,000.

Buckingham Branch Railroad (BB) – Total Funding Need $64,932,867:

- Program Needs

Tie Replacement (Safety Ties) Class 2	20,740	$1,760,900
Tie Replacement (Safety Ties) Class 4	78,660	$6,686,100
Ballast	146,000	$2,190,000
Surface Track	292.0	$2,920,000
Rail Replacement	19.5	$5,158,667
Joint bolt tighten	146.0	$394,200
Drainage/ditching	146.0	$1,460,000
		$20,569,867

- Project Needs

Total Project Needs $44,363,000

1. Washington and North Mountain Subdivision out of face tie replacement project. This six year (5five years remaining) project to replace 116,000 ties from CA160 to CA276. This project also includes ballast, surfacing, drainage, and tie disposal. Estimated cost to complete $8, 800,000.
2. Orange Branch upgrade project. This three year project upgrades the 9.1 mile section of track from Orange to Gordonsville. This project will bring the track back up to Class III. Work includes installation and disposal of approximately 9,000 ties, surfacing, upgrading three public crossing surfaces, upgrading the deck of one bridge, and upgrades two grade crossing protection systems. Estimated costs $1,300,000.
3. Signal System upgrade / replacement project. This remaining six year project replaces the signal system from Orange to Clifton Forge (approximately 125 miles). Estimated cost to complete $12,800,000.
4. Washington and North Mountain Subdivision in-track welding project. This is a six year project to crop and weld in place all remaining jointed rail on this section. A cut and slide method will be used to eliminate the joints in approximately 46.3 track miles (92.6 rail miles). Estimated costs $7,963,000.
5. Piedmont Subdivision in-track welding project. This six year project to crop and weld in place all jointed rail on this section. A cut and slide method will be used to eliminate the joints in approximately 48 track miles (96 rail miles). Estimated costs $8,400,000.

6. Virginia Southern Division One year project to make emergency structural repairs at various locations. Estimated costs $30,000.
7. Virginia Southern Division Two year project to replace 16,000 ties out of face annually. Estimated costs $1,960,000.
8. Virginia Southern Division Three year project to replace 39,072 LF of rail out of face annually. Estimated costs $5,210,000.

Chesapeake and Albemarle Railroad (CA) – Total Funding Need $5, 105,047:

- Program Needs

Tie Replacement (Safety Ties) Class 2	20,008	$1,700,680
Tie Replacement (Safety Ties) Class 4	0	$0
Ballast	41,000	$615,000
Surface Track	82.0	$820,000
Rail Replacement	5.5	$1,448,667
Joint bolt tighten	41.0	$110,700
Drainage/ditching	41.0	$410,000
		$5,105,047

- Project Needs

Total Project Needs $0

1. This short line did not submit specific request for project funding.

Chesapeake Western Railroad (CHW) – Total Funding Need $4, 595,983:

- Program Needs

Tie Replacement (Safety Ties) Class 2	3,660	$311,100
Tie Replacement (Safety Ties) Class 4	12,160	$1,033,600
Ballast	23,500	$352,500
Surface Track	47.0	$470,000
Rail Replacement	3.1	$830,333
Joint bolt tighten	23.5	$63,450
Drainage/ditching	23.5	$235,000
		$3,295,983

- Project Needs

Total Project Needs $1,300,000

1. 286K Bridge rating improvement program to increase capacity of 5 bridges. Estimated costs $1,300,000.

Commonwealth Railway, Inc. (CWRY) – Total Funding Need $2,871,107:

- Program Needs

Tie Replacement (Safety Ties) Class 2	3,904	$331,840
Tie Replacement (Safety Ties) Class 4	0	$0
Ballast	8,000	$120,000
Surface Track	16.0	$160,000
Rail Replacement	1.1	$282,667
Joint bolt tighten	8.0	$21,600
Drainage/ditching	8.0	$80,000
		$996,107

- Project Needs

Total Project Needs $1,875,000

1. Rehabilitative improvements to bridges at MP 8.3, 8.7, 9.9, 13.6, 14.6, 14.9, 15.3, 16.0, 16.3 and 16.4. Estimated costs $235,000.
2. APM Terminal additional temporary connection tracks including; grading (2,700 TF), #10 turnouts (2 each), diamond (1 each) and new track (2,700 TF). Estimated costs $705,000.
3. Repair QVC Crossing. Estimated costs $25,000
4. Relocation of 10 Automatic Signal Crossing Systems. Estimated costs $700,000
5. Repair Suburban and Bromay Road Crossings. Estimated costs $100,000
6. Repair Nansemond Road Crossing Estimated costs $50,000
7. Repair Wilroy Road Crossing Estimated costs $25,000
8. Repair Sportsman Blvd Crossing Estimated costs $25,000

Deepwater Terminal Railroad (DWT) – Total Funding Need $4,902,691:

- Program Needs

Tie Replacement (Safety Ties) Class 2	1,098	$93,330
Tie Replacement (Safety Ties) Class 4	0	$0
Ballast	2,250	$33,750
Surface Track	4.5	$45,000
Rail Replacement	0.3	$79,500
Joint bolt tighten	2.3	$6,075
Drainage/ditching	2.3	$22,500
		$280,155

- Project Needs

Total Project Needs $4,652,536

1. Construction of a new track to connect to the existing Norfolk Southern siding at the Richmond Sewage Facility. This project will provide competitive rail access to the port and existing distribution centers on the lead to the port. The estimated cost is $4,652,536.

Norfolk and Portsmouth Belt Line (NPBL) – Total Funding Need $8,685,240:

- Program Needs

Tie Replacement (Safety Ties) Class 2	8,784	$746,640
Tie Replacement (Safety Ties) Class 4	0	$0
Ballast	18,000	$270,000
Surface Track	36.0	$360,000
Rail Replacement	2.4	$636,000
Joint bolt tighten	18.0	$48,600
Drainage/ditching	18.0	$180,000
		$2,241,240

- Project Needs

Total Project Needs $6,444,000

1. So. Branch Bridge No.1 S/E piles Estimated costs $220,000
2. Drainage work S/E Berkley yard Estimated costs $115,000
3. Embankment Stabilization So. Br. M/L Estimated costs $125,000
4. Main Line Bridge East Fender Estimated costs $575,000
5. Replace (48) counterweight cables on Main Line Bridge (center lift span) over Southern Branch Elizabeth River. Estimated costs $1,700,000
6. Rehabilitate electrical system and remote controls on Main Line Bridge Estimate Costs $120,000
7. Installation 12,800 linear feet of 132 pound Continuous Welded Rail (CWR) in Berkley yard tracks 13, 14 and 15 replacing jointed rail consisting of 85 lb to 100 lb rail Estimated costs $350,000.
8. Installation 7,120 linear feet of 132 pound Continuous Welded Rail (CWR) in Berkley yard tracks 6, 10 and 11 replacing jointed rail consisting of 85 lb to 100 lb rail and rehabilitate 3 #8 Turnouts Estimated costs $550,000.
9. Installation of 3,200 liner feet of 132 pound Continuous Welded Rail (CWR) on the main switching lead between Liberty Street and the New York Switch replacing jointed rail. Estimated costs $150,000.
10. Continuous renewal of Berkley yard switches by upgrading five switches at the office end of Berkley yard. The project consists of replacing the #2, #3, #4, and upper #3, upper main-line, switches on Berkley yard. Estimated costs $200,000.

11. Rehabilitate 9 #8 Turnouts at the north end of Berkley Yard and Installation 6,100 linear feet of 132 pound Continuous Welded Rail (CWR) in Berkley yard tracks 16, 17 and 18 replacing jointed rail consisting of 85 lb to 100 lb rail Estimated costs $795,000.
12. Rehabilitate 10 #8 Turnouts at both ends of the VGN Yard and Installation 4,800 linear feet of 132 pound Continuous Welded Rail (CWR) Estimated costs $852,000.
13. Rehabilitate 8 #8 Turnouts at Barnes Yard and Buells Siding and Installation 4,600 linear feet of 132 pound Continuous Welded Rail (CWR) Estimated costs $597,000.
14. Rehabilitation of the crossing surface and track structure at Liberty Street crossing. Estimated costs $45,000.

North Carolina and Virginia Railroad (NCVA) – Total Funding Need $1,743,187:

- Program Needs

Tie Replacement (Safety Ties) Class 2	6,832	$580,720
Tie Replacement (Safety Ties) Class 4	0	$0
Ballast	14,000	$210,000
Surface Track	28.0	$280,000
Rail Replacement	1.9	$494,667
Joint bolt tighten	14.0	$37,800
Drainage/ditching	14.0	$140,000
		$1,743,187

- Project Needs

Total Project Needs $0

1. This short line did not submit specific request for project funding.

Shenandoah Valley Railroad (SV) – Total Funding Need $2,305,233.

- Program Needs

Tie Replacement (Safety Ties) Class 2	4,880	$414,800
Tie Replacement (Safety Ties) Class 4	0	$0
Ballast	10,000	$150,000
Surface Track	20.0	$200,000
Rail Replacement	1.3	$353,333
Joint bolt tighten	10.0	$27,000
Drainage/ditching	10.0	$100,000
		$1,245,133

- Project Needs

Total Project Needs $1,060,100

1. Place 1,000 tons of rip-rap annually at select locations in order to reinforce railroad fills that are experiencing erosion problems. Estimated costs $300,000.
2. Thermite weld approximately 36 joints on continuous weld rail main track. Estimated costs $12,600.

3. Construct a runaround / storage siding at Verona. Siding length would be approximately 750 ft. between clearance points. Required materials would be two 131-132 lb. switches, including necessary switch ties, approximately 1,750 ft. of jointed rail, approximately 400 railroad tie, and miscellaneous materials such as tie plates. Spikes, etc. and materials for grade construction, including ballast and right of way clearing. The construction of the Verona siding will also require the installation of two railroad high way crossings at grade with passive warning devices. Estimated costs $200,000.
4. Replace 25 bridge timber ties annually between 2010 and 2016. Estimated costs $22,500.
5. Construct a runaround / storage siding at Staunton. Siding length would be approximately 950 ft. between clearance points. Required materials would be two 85 lb. switches, including necessary switch ties, approximately 1,150 ft. of jointed 85 lb rail, approximately 500 railroad tie, and miscellaneous materials such as tie plates. Spikes, etc. and materials for grade construction, including ballast and right of way clearing. The construction of the Staunton siding will also require the installation of two railroad high way crossings at grade with passive warning devices. Estimated costs $225,000.
6. Brush cut the entire line between 2010 and 2016. Estimated costs $300,000.

Winchester and Western Railroad Co. (WW) – Total Funding Need $3, 569,940:

- Program Needs

Tie Replacement (Safety Ties) Class 2	8,784	$746,640
Tie Replacement (Safety Ties) Class 4	6,840	$581,400
Ballast	27,000	$405,000
Surface Track	54.0	$540,000
Rail Replacement	3.6	$954,000
Joint bolt tighten	27.0	$72,900
Drainage/ditching	27.0	$270,000
		$3,569,940

- Project Needs

Total Project Needs $0

1. This short line did not submit specific request for project funding. The project requested has been converted to a Programmatic Need.

F. Public Funding Sources

Overview

DRPT administers approximately $300 million annually in financial support for capital, and operating and maintenance costs of public transportation services across the Commonwealth. Federal and state aid is provided to supplement revenues collected from fares and local funds provided in support of public transportation operations such as the following:

- Financial support for projects that demonstrate new public transportation services or techniques in service delivery.
- Financial support for training for drivers, mechanics and professionals working for Virginia's public transportation systems.
- Financial support for the operations of Commuter Assistance Agencies and the delivery of services to businesses and the general public.
- Federal and state financial support for the procurement of vans and small buses used for the transport of elderly and disabled clients by private non-profit agencies.
- Financial assistance to business and industry to defray the costs of rail access and development on industrial sites and reduce truck traffic.
- Financial assistance to shortline railroads to defray the costs of capital infrastructure projects that assist in the preservation of rail service to areas of the Commonwealth that otherwise would not have this service.

DRPT's funding comes from transportation trust funds (89%) and federal funds (11%). The majority of the transportation trust funds ($152.1 million) come from the Mass Transit Trust Fund which represents DRPT's 14.7% allocation of the 1986 Special Session Revenue (Transportation Trust Fund). Commonwealth of Virginia Transportation Capital Projects Revenue Bonds (Code of Virginia § 33.1-23.4:01) provide $90 million to the Mass Transit Capital Fund in FY11 and $8.6 million to the DRPT rail programs in FY11. An additional $25.5 million represents the state portion of vehicle rental taxes collected in the Transportation Trust Fund that is used for the Rail Enhancement Fund, and $32.9 million is funded through the Highway Construction Fund or Highway Maintenance and Operating Fund. The majority of the federal percentages are attributable to DRPT's Federal Transit Administration (FTA) 5310 and FTA 5311 programs.

Existing funding for rail development projects in the Commonwealth are provided through the Code of Virginia § 33.1-221.1:1.1 – which established the Rail Enhancement Fund; the Virginia Transportation Act of 2000 was created by HB 608 of the 2000 Acts of Assembly, which, among other General Assembly actions, established the Priority Transportation Fund in §33.1-23.03:8; Code of Virginia § 33.1-23.4:01 - allocation of proceeds of Commonwealth of Virginia Transportation; and Capital Projects Revenue Bonds discussed below.

The vast majority of annual funds are allocated to mass transit projects and operations (approximately 84 percent) with the remaining funds allocated to a variety of rail improvement projects. The typical annual expenses noted above do not include special appropriations that have been made by the Commonwealth for rail improvement projects.

The 2007 General Assembly session provided increases in funding for transit and rail in FY08 that will benefit all of DRPT's programs. HB3202 dedicated a minimum of 20% of bond proceeds to major transit capital projects statewide.

The bond package includes a minimum of 4.3% of available funds specifically for rail transportation. This equates to approximately $4.3 million in FY08 and then $12.9 million each year afterward to be administered through the Rail Enhancement Fund and the Rail Preservation Program for rail capital projects. In addition, the Appropriations Act included $65 million to support rail initiatives in the I-95 and I-81 corridors.

Rail Preservation Fund

The Rail Preservation Fund (RPF) provides funding for the preservation and continuation of existing rail service to increase productivity, safety and efficiency of shortline railway transportation logistics in Virginia. Through projects funded by the Rail Preservation Program, a rail transportation alternative to businesses and industries in areas of the Commonwealth that otherwise would not have that opportunity if the program did not exist. This program has become a key component of the Commonwealths' initiative to attract and maintain business in Virginia.

Project funding is provided through the Code of Virginia § 33.1-221.1:1.2 - established the Shortline Railway Preservation and Development Fund; and the Code of Virginia §33.1-23.4:01 - Allocation of proceeds of Commonwealth of Virginia Transportation and Capital Projects Revenue Bonds. Not including special allocations, the rail preservation fund is allocated $3 million annually for shortline rail improvement projects.

Business and industry in the Commonwealth will continue to expand or locate their services to meet the increasing demand for industrial and commercial development. The Rail Preservation Program assists in the continuation of rail services in remote areas that otherwise would probably not have rail services provided. For example, funding to the Commonwealth Railway shortline has continued rail service to the West Norfolk area of Portsmouth, resulted in providing rail services to the new APM Terminal, which was constructed on the Commonwealth Railway rail line. The APM container terminal development is the single largest private investment in Virginia history and, in part, chose Virginia for its dual (CSX & NS) rail access opportunities offered by a shortline railroad. As all Class I railroads work to maximize the assets of the company, more shortline railroads will be created and rail lines will be abandoned. The increased demand of the stockholders of the larger railroad companies will potentially lead to an increase of shortline spin offs and abandonment of existing rail lines.

Program Overview

The Commonwealth Transportation Board (CTB) considers railways and rail corridors as important elements of the Statewide Transportation System. The CTB supports the use of funds for projects deemed important elements of the Statewide Transportation System.

The Department of Rail and Public Transportation (DRPT) Director administers and expends or commits, subject to the approval of the CTB, funds set forth in the Appropriations Act for this purpose. However, no funds can be used for general railroad operating expenses. Costs incurred for the administration of approved projects are an eligible expense.

In allocating funds for improvement, the CTB considers the project cost in relation to the prospective use, line capacity, and the economic and public benefits. The CTB has adopted procedures for the allocation and distribution of the funds, including provisions for safeguarding the Commonwealth's interest in all projects.

DRPT develops projects for the consideration of the CTB or receive applications from others for projects. Each application must be accompanied by a resolution from the appropriate local government or Transportation District Commission supporting the proposed project.

Funds are provided in the form of grants or loans to acquire, lease, improve, or assist other appropriate entities to acquire, lease, or improve railways, related facilities, and equipment on public or private property, and to purchase railway properties for rail service and other transportation purposes.

The Commonwealth retains an interest in materials installed in tracks, and facilities reconstructed or improved with grant funds from the Commonwealth until the Commonwealth's interest is repaid or the useful life as determined by the Director has expired (usually set at 15 years).

The Commonwealth does not consider any rail with a weight of less than 112 lbs. / yd to be an acceptable size for use in the track structure. Rail Preservation monies will not be utilized to pay for (or pay to have installed) any rail less than the minimum accepted size.

DRPT's goal is to assist in bringing all Shortlines to a Class 2 Track Safety Standard operation for freight only operations, and to a Class 3 Track Safety Standard where passenger trains operate as prescribed in the Track Safety Standards publication as part of the Federal Railroad Administration's Title 49 Part 213 regulations. The achievement of this plan will depend on the availability of funding. Once reached, the track will be maintained at this level.

G. Policy Framework

DRPT has concluded that to accomplish its goal of bringing the Shortline Railroads up to the sustainable conditions it desires that it must develop both a Short Term and a Long Term Program

Shortline Railroads - Short Term Program

Within the 2009-2014 SYIP priorities will be placed on the following rail improvements:

- Improve shortline railroads to Class 2 standards for freight operations, and Class 3 standards for those that carry passenger trains. Priority will be given to passenger service shortlines, as well as shortlines connecting with the port system in Virginia that handle containerized cargo.
- Continue to work with the Virginia Economic Partnership and local economic development agencies to attract rail dependent businesses throughout Virginia – particularly in rural and economically depressed areas of the Commonwealth.

Shortline Railroads - Long Term Vision Program

Priorities will be placed on the following rail improvements projects for a Commonwealth Rail System by 2035:

- Complete rail improvements of all shortline railroads to Class 2 standards for freight operations, and Class 3 standards for those that carry passenger trains.
- Continue to work with the Virginia Economic Partnership and local economic development agencies to attract rail dependent businesses throughout Virginia – particularly in rural and economically depressed areas of the Commonwealth.

Rail Industrial Development Potential

The Commonwealth is interested in preserving the railroad lines in Virginia because they support other goals such as economic development. The potential for rail served industrial development in Virginia is strong. There are numerous locations that can potentially serve a wide range of industrial uses. The Virginia Economic Development Partnership (VEDP) supplies prospective business/developers the resources needed to discover an optimum site location to move in to or (re)develop. The VDEP website offers an interactive database with comprehensive search capabilities that is able to locate available industrial parks, sites, land, and buildings that are accessible by rail. As of the date of this report, there are 245 available rail served industrial properties listed by the VEDP. The VEDP provides a site selector search engine that includes rail service as a criteria at; http://virginiascan.yesvirginia.org/site_selection/PropertySearch.aspx .

Proposed Improvement Guidelines

Track structure improvements should be designed to handle 286,000 pound railcar axle loading utilizing AREMA design methodologies or a track structure analysis program. The Track 3.0 track structure analysis program developed by the Army Corps of Engineers will be acceptable. It generally follows the AREMA design methodologies. While the accuracy of this, and any model, can be debated, comparisons using the same model typically allow valid comparisons between cases. Track 3.0 allows comparisons of rail weight, car loading, ballast depth and subgrade to determine an appropriate design.

Rail and tie standards have caused some concerns with the shortline operators that are trying to stretch their maintenance dollars by using lower cost items for maintenance in the short term rather than using higher cost items that produce a long term benefit. The Goal of the DRPT to achieve a sustainable track structure will require the installation of seven (7) inch mainline quality ties and 112 pounds per yard or heavier weight rail. If the operator can provide data and analysis that supports a site specific a substitution provides the same long term benefit, the Commonwealth will consider the approval of the substitution.

Short Term Action Plan / Six Year Improvement Plan

Financially Constrained SYIP

A summary of the proposed short term action plan and six year improvement plan (SYIP) for shortline rail improvements based on a continuation of existing funding levels for the Rail Preservation Fund (RPF) program are summarized in Table 6. The current funding level is approximately $3.2 million per year for the Rail Preservation Fund. Total project costs for shortline rail preservation projects for FY2009 to FY2014 equal approximately $51.7 million, which represents $35.5 million in Commonwealth RPF funds plus $16.2 million in applicant matching funds (roughly a 70 / 30 percent split in funding sources). The total SYIP cost also includes approximately $20.4 million from previous RPF FY08-13 allocations for on-going rail improvement projects.

Table 6 - RPF Six Year Improvement Plan (Constrained)

Proj. No.	Application Project Name	Applicant	2008 ($1,000)	FY2009-2014 NEW PROJECTS ($1,000) 2009	2010	2011	2012	2013	2014	% Match	Total RPF ($1,000)	Applicant Match (1,000)	Total Project Cost ($1,000)
1	Orange Branch Upgrade	BBRR	$ -	-	$ 910	$ -	$ -	$ -	$ -	70/30	$ 910	$ 390	$ 1,300
2	Signal System Upgrade	BBRR	-	350	1,722	1,722	1,722	1,722	1,722	70/30	8,960	3,840	12,800
3	Wash. and N. Mt. In-Track Welding	BBRR	-	-	-	943	797	907	980	70/30	3,626	1,554	5,180
4	N. Mt. Rail Replacement	BBRR	-	123	116	116	116	-	-	70/30	470	201	671
5	Piedmont In-Track Welding	BBRR	-	-	-	980	980	980	980	70/30	3,920	1,680	5,600
6	Tie and Switch Timber Replacement	BCRR	-	130	-	-	-	-	-	60/40	130	87	217
7	Berkley Yard and Main Switches, Crossing	NPBL	-	245	-	-	-	-	-	70/30	245	105	350
8	Tie, Surfacing, Bridge Timbers, Crossings	SVRR	-	37	-	-	-	-	-	65/35	37	20	57
9	Tie / Rail Replacement, Surfacing, Crossing	WWRR	-	420	824	644	474	627	651	70/30	3,641	1,560	5,202
	Subtotal		**$ -**	**1,305**	**$ 3,572**	**$ 4,405**	**$ 4,088**	**$ 4,236**	**$ 4,333**	**--**	**$ 21,939**	**$ 9,438**	**$ 31,377**

Proj. No.	4 Projects Carried Over From FY08-13 SYIP Application Project Name	Applicant	2008 ($1,000)	FY08-13 Carried Forward Into FY09-14 SYIP (1,000) 2009	2010	2011	2012	2013	2014	% Match	Total RPF ($1,000)	Applicant Match (1,000)	Total Project Cost ($1,000)
A	Tie Replacement - 34,000	BBRR	$ 385	$ 385	$ 385	$ 385	$ 385	$ 385	$ -	70/30	$ 2,310	$ 990	$ 3,300
B	Tie Replacement - 116,000	BBRR	1,209	1,430	1,430	1,430	1,430	1,430	-	65/35	8,359	4,501	12,860
C	Rail Replacement	BBRR	455	455	420	420	420	420	-	70/30	2,590	1,110	3,700
D	Grade Crossing Improvements - Safety	CWRY	330	20	-	-	-	-	-	70/30	350	150	500
	Subtotal		**$ 2,379**	**$ 2,290**	**$ 2,235**	**$ 2,235**	**$ 2,235**	**$ 2,235**	**$ -**	**--**	**$ 13,609**	**$ 6,751**	**$ 20,360**

TOTAL FY09-14 Program (1,000)	2009	2010	2011	2012	2013	2014	--	RPF (1,000)	Local Match	Total Project Cost (1,000)
	$ 3,595	**$ 5,807**	**$ 6,640**	**$ 6,323**	**$ 6,471**	**$ 4,333**	--	**$ 35,548**	**$ 16,189**	**$ 51,737**

Long Term Vision / 2030 Plan

Required programmatic rail improvements for the shortlines to meet Class 2 rail standards equal approximately $209,251,042 million (Table 3) to meet forecasted increases in freight and passenger services. This investment would be a key component to meeting the long term vision goals of the Department discussed in the Statewide Rail Plan. Some of the improvement needs might be the full responsibility of the shortline railroads, and only those projects that had public benefit that exceeded the public funding amount would be eligible for Commonwealth funding.

For planning purposes, the worst case scenario would be that all of the estimated improvement needs were eligible for Rail Preservation Funding and met the benefit cost requirements of the assistance program. Assuming that the railroads were able to fund 30% of the project costs ($62.7 million), the remaining 70% ($146.5 million) would require public funds. At the current RPF funding level of approximately $3.2 million available per year, it would take approximately 46 years to complete the necessary programmatic improvements (assuming that RFP funding would be increased in accordance with cost increases in the rail industry in future years).

H. APPENDICES

Appendix 1 – Track Structure Analysis